ECONOMIC EFFECTS OF PARKS AND RECREATION ON LOCAL AND STATE ECONOMIES

North Carolina

A Report Prepared Under the Sponsorship of the Public Area Recreation Visitors Study Working Group

USDA Forest Service
Southeastern Forest Experiment Station

The University of Georgia
Department of Agricultural Economics

ECONOMIC EFFECTS OF STATE PARKS
ON LOCAL AND STATE ECONOMIES:
STATE OF NORTH CAROLINA

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RESULTS SUMMARY

North Carolina was one of the first states to join the PARVS Working Group (Table 1). The intent of this Working Group is to cooperatively develop credible and meaningful information portraying the economic significance of parks and recreation. North Carolina's State Park System is located within a state experiencing rapid economic growth. It is suspected that park and recreation opportunities in the state may contribute to this growth.

Annual visitation among the 2 parks selected to represent the North Carolina Park System ranged from approximately 191.6 thousand at Hanging Rock to around 1.2 million visits at Kerr Lake. Out-of-state visitation, important in determining the economic growth contribution, locally and statewide, was 16 and 23 percent for Hanging Rock and Kerr Lake, respectively. Visitation from outside of the counties contiguous to the representative parks was 62 and 82 percent of all visitors for Hanging Rock and Kerr Lake, respectively.

The average length of stay for the typical visitor at Hanging Rock State Park ranged from 2.96 hours for dispersed site use to 16.64 hours for water related use. Additionally, total expenditures per person per trip for the typical user at Hanging Rock were $18.56 for developed site use, $48.17 for dispersed site use, and $18.98 for water related use.

The average length of stay by typical visitors at Kerr Lake state park was 11 hours for developed site users and about 39 3/4 hours for dispersed site users. Statistics for water related use were unavailable. Total expenditures per-person per-trip for the typical visitor to Kerr Lake were $51.89 for developed site users and $53.91 for dispersed site users.

Non-resident spending multipliers reflect the total new economic growth stimulated by the direct effects of recreational spending on a per dollar basis (Figure 1). In local areas where the economic structure of business and industry is more diverse and more self-dependent, economic impacts of parks at the local level typically are higher per dollar of non-residence recreation spending than in areas that are less diverse. Total gross output multipliers ranged from 1.58 to 1.92 at Hanging Rock State Park. At Kerr Lake State Park, the total gross output multipliers ranged from 1.75 to 1.91. Additionally, the total income multipliers ranged from 1.77 to 2.15 at Hanging Rock and 2.04 to 2.09 at Kerr Lake. Similarly, employment multipliers ranged from 1.26 to 1.40 at Hanging Rock and 1.25 to 1.40 at Kerr Lake. To illustrate the application of these multipliers examine the total gross output multiplier for developed site use at Kerr Lake. This multiplier indicates that for every one dollar of total gross output generated in the local impact area by direct spending, $1.79 of new economic activity will be generated in the local area around Kerr Lake.

The distinction between resident and non-resident spending is important. Non-resident spending represents an infusion of "new" money and added jobs and income into the local and/or state economy. Total gross output stimulated from non-resident spending at the local level is $4,137,200 at Hanging Rock and $43,802,600 at Kerr Lake. At the state level, total gross output resulting from non-resident spending is $2,224,900 and $25,375,100 for Hanging Rock and Kerr Lake, respectively. Total income values resulting from non-resident spending at Hanging Rock were $1,772,800 and $920,400 at the local and state level, respectively. Total income values resulting from non-resident spending at Kerr Lake were $19,326,700 and $10,343,200 for the local and state levels respectively (Figure 2). Approximately 145 local area and 72 state area jobs were supported by non-resident spending by Hanging Rock visitors. Similarly, 2,012 local area and 797 state are jobs were supported by non-resident spending by visitors to Kerr Lake (Figure 3).

The inclusion of resident spending with non-resident spending measures the overall economic interdependence between state park and local and state economies. Interdependence does not imply added income and jobs, although that portion of total spending by non-residents does imply new

annual economic benefits. Kerr Lake had the greatest such interdependence -- $68 million at the local level and $132 million at the state level. The estimates are of total gross output, a measure of total stimulated economic activity among all affected sectors of the relevant economies (Figure 4). Overall, North Carolina's state parks are an important component of the state's economy. The diverse and growing population and economy of the state will likely continue to support the economic importance. Using the data and estimates from this report, further work should be undertaken to extrapolate these park-level economic effects to estimate total state-wide park system interdependence and impact. This information is highly relevant for future park system policies and budgeting.

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INTRODUCTION

Resource managers are often faced with evaluating alternatives in making important decisions. For decisions about recreation development or changing the opportunities offered to the public, they must rely heavily on information provided by recreation planners. Recreation planners must be able to adequately explain the benefits, costs, and possible social, economic and environmental effects of strategies or actions. Currently, the potential economic effects of recreation resources management decisions on local or regional economies is receiving much attention.

In recent years, considerable advances have been made in planners' ability to evaluate the economic importance and impact of recreation on local or regional levels. The U.S. Forest Service has developed a large-scale input/output model which is capable of simulating the economic interrelationships between firms, industries, and government in a local or regional economy, including those involved with and affected by recreation. This model, called IMPLAN, enables planners to assess the interdependence of recreation in local or regional economies, and estimate the potential impacts on local or regional economies of changes in recreation trends, patterns, or management actions.

Operation of the IMPLAN model to analyze the economic interdependence and impact of recreation on a local or regional economy requires data describing recreational expenditures. As a result of cooperative research efforts over the past five years, local and regional recreational expenditure data have been collected for many states through the efforts of the Public Area Recreation Visitor Study (PARVS) Working Group. PARVS was designed with a specific objective of providing expenditure data compatible with the IMPLAN model.

The IMPLAN model-PARVS data combination provides the most credible system currently available for analyzing the economic interdependence and impact of recreation on local and regional economies. In this report, the IMPLAN/PARVS system is used to analyze the economic interdependence and impact of outdoor recreation in the state of North Carolina. Background theory and concepts are discussed in the next section. The methodology of the study is then discussed. Following the methodology discussion, economic interdependence and impact results are presented and analyzed. Implications of these results are discussed in the final section.

Background Concepts

Economic Interdependence and Impact: The Concepts

Economic impact is a term in sharp contrast with the more widely used concepts of economic value and efficiency. Economic value is typically identified as a person's willingness to pay for the opportunity to recreate and, as such, represents the direct worth of on-site recreational access to recreational visitors. Economic efficiency is commitment of resources at a level sufficient to maximize the net difference between total social benefits and total costs of producing recreational opportunities.

Economic impact concerns the sale of goods and services stimulated by recreational visits, and the resulting distribution of spending and production. Economic impact analysis measures the gains or losses which occur among businesses and industries as a result of changes in recreation visitation. Changes in visitation could be the result of any number of possible changes in demand factors, such as increased population, taste changes and resulting substitution of activities, or change in socioeconomic conditions. The change in visitation could also be the result of a change in supply factors, such as access policy, entrance requirements, or capacity. Maximizing economic impact through influencing changes in visitation does not imply economic efficiency, nor

maximizing social welfare. From a local or state economic development perspective, however, maximizing economic impact may be a legitimate goal of recreation resource allocation and management.

Impact on the economy can be examined in great detail. Analysis is intended to go beyond determination only of the "direct effects," which are simply the amount of the increased purchase of inputs used to manufacture or produce the final goods and services purchased by recreationists or by the managing agency. "Indirect effect" refers to the value of the inputs used by firms which are called upon to produce additional goods and services for those firms first impacted directly by recreational spending. "Induced effects" are caused by or result from the direct and indirect effects of recreation spending. Induced effects are related to persons and businesses who receive added income as a result of local spending by employees and managers of the firms and plants which are impacted by the direct and indirect effects of recreational spending. This added income results in increased demand for goods and services and, in turn, increased production and sales of inputs. This increased production and sales of inputs represents the induced effect of recreational spending. The total economic impact of expenditures related to recreational visits is the sum of direct, indirect, and induced effects (Walsh 1987). Typically, the total effects are between 1/2 to 2 times more than the amount which the recreationists originally spent in the local or state economy. More detail on the important concepts of direct, indirect, and induced effects is provided in Appendix A.

Although the expenditures made by recreationists often appear high, the net contribution to the local or state economy can be modest. A large portion of the retail sales made in rural areas, such as those surrounding parks and reservoirs, is often subsequently spent outside of the economy's borders through the necessary wholesale purchases of production inputs and consumer goods which are not produced locally (Bromley 1972). Early examinations of economies near federal reserves found that only 10 to 28 cents of each dollar spent for restaurant meals were worker and proprietor income (Clawson and Knetsch 1966). In service sectors, such as lodging, the figure was closer to 50 cents because of the use of local labor.

Tourism, particularly that associated with visitation to parks for recreation, generates an interesting mix of direct effects. While reference is often made to the "tourist industry", there are actually a number of industries which make sales to visitors, but which also serve local residents and industries. It quickly becomes evident that appropriate economic analysis needs to look at individual sectors of the economy to identify specific effects of expenditures. Past efforts which highly aggregated expenditures or reported only expenditures, however specific to industries, have been appropriately criticized (Gramman 1983; Lichty and Steinnes 1982).

In requesting estimates of economic impact, many planners and managers are interested in regional multipliers. "Regional economic multipliers" are very important. They also are sometimes difficult to grasp. Walsh (1987) defined a multiplier as the total effects divided by the direct effects. This is the most commonly used definition. In short, such a multiplier expresses the total amount of economic activity in a region generated per dollar of direct economic effect of recreational spending. Multipliers describe the effects of the first and all subsequent rounds of stimulated spending for inputs and consumer products and services. The multiplier multiplied by the direct effect of recreational spending equals the total economic effect. The greater the multiplier, the greater is the amount of stimulated economic activity associated with a change in visitor expenditures.

Implications of Economic Interdependence and Impacts

Expenditures made in association with recreational trips must be examined in relation to an impact region, defined in a number of ways. Typically, an impact region represents a multiple county area or a state within which a recreation opportunity exists and which is the area of interest

to planners, politicians, the business community, or others for its economic growth need or potential.

Of primary interest are usually those expenditures made within an impact region by residents from other regions (non-residents). These expenditures represent outside money flowing into the regional economy. It is assumed that without the park or recreation facility, these revenue dollars would not flow into the region. Resident expenditures represent money already in the region and do not usually represent economic growth potential. Mostly they represent a particular pattern by which dollars spent for recreation at the park or site flow through the local economy.

The argument has been made, however, that if the park was not located in the region, expenditures to participate in resource-based types of recreation by residents would likely occur at parks in some other region or that this money may be spent on items or activities with lower "value-added" percentages. While economic impact usually refers to income changes resulting from expenditures by non-resident visitors to a region, there is also some justification for examination of expenditures related to recreation visits by residents. The relevance of examining the economic effects of non-resident and resident expenditures depends on the policy, allocational, or welfare questions being posed.

Expenditure of dollars by residents usually does not represent new income to the region. However, if a recreation or tourism business is highly interrelated with other industries in a local or regional economy, resident expenditures will tend to have a major effect on the magnitude and distribution of total expenditures, income, employment, and other economic factors in the economy. Thus, analysis of resident spending is useful for assessing the interdependence of recreation to other industries in a local or regional economy. The potential problem with including resident spending is that the results may be misinterpreted as new income and net economic growth in the region of interest. The proper interpretation is that resident spending represents the interdependence between a park and a local economy. If this interdependence is relatively high, recreation is expected to be an important component of the local economy.

Methodology

IMPLAN: The Analysis Component

Expenditure items included in the Public Area Recreation Visitors Study (PARVS) mailback questionnaire were developed specifically to provide visitor expenditure profiles to use with IMPLAN. These obtained expenditure profiles are "bridged" to the IMPLAN process through a series of mathematical transformations stating the relationship between visitor expenditures, as reported in the PARVS survey, and the sectors of the economy modeled by IMPLAN. For instance, one dollar spent for gasoline, a common recreation related expenditure, provides direct stimulation to those industries and services which contribute to the manufacturing and distribution of gasoline. Expenditures on gasoline result in expenditure allocation across the following IMPLAN sectors: petroleum refining, lubricating oils and greases, petroleum and coal production, rail related transportation, pipe transportation, other wholesale trade, and other retail trade. Once the gasoline purchases are distributed or "bridged" across IMPLAN sectors, the IMPLAN process then provides estimates of the amount of personal and proprietary income, employment, taxes, value added, overall production, and spending in a specified county, group of counties, state or region as a result of recreationists' spending. The interest is usually in the effect of an increase or decrease in recreation visitation and the effect of this visitation change on demand for particular goods and services.

IMPLAN is the product of the Land Management Planning Division, USDA Forest Service. The second version of IMPLAN is currently operated from Fort Collins, CO, where software and the supporting data bases reside on the Fort Collins Computing Center mainframe computer. A microcomputer version of IMPLAN is also available.

The revised version of IMPLAN emphasized software and better defined IMPLAN sectors relevant to analyzing recreation and tourism (Alward and Lofting 1985). In addition to improvement of software for Version II, extensive collaboration between the IMPLAN development staff and PARVS coordinating scientists has provided excellent bridging of PARVS data. Highly disaggregated commodity and service groups are used for basic allocation of expenditures (Watson and Bratcher 1987).

Public Area Recreation Visitor Study: The Data Component

In 1982, plans were begun for replicating the 1977 Federal Estate Visitor Survey. At the same time, several state and federal agencies and related national associations, including the National Association of State Recreation Planners (NASRP) and the Council of State Planning Agencies, were independently seeking ways to credibly estimate the economic benefits of recreation and tourism. With the joint leadership of the USDA Forest Service, the NASRP, National Park Service, and the U.S. Army Corps of Engineers, economists and scientists working in this area of recreation and tourism economics were assembled to develop a system for producing credible and cost-effective estimates of the various economic parameters related to recreation and tourism. A conference was conducted at Michigan State University in association with efforts to examine data and analysis system needs (Propst 1985).

Currently 6 federal agencies, 11 states, 3 national associations, and 1 university are cooperating with PARVS (Table 1). Data have been collected nationwide since June 1985 and continue to be collected. While some data sets are complete, some additional state agencies are just beginning to collect data. There have been more than 40,000 contacts made with recreation visitors. More than 9,000 of those visitors have provided detailed information about their annual and trip-related expenditures. Expenditure data were collected by all states involved, though federal agencies were restricted to collecting expenditure data only in the Southern Region of the United States. Data were collected in three phases:

1. On-site: Interviews were conducted during a recreation trip to describe recreation visitors, their recreation behavior, and their travel patterns. The methodology developed required roadside interviews of visitors as they exited the site. Basic data were collected on group and individual characteristics and activity participation. All data elements were designed to be comparable with Bureau of the Census and other national survey definitions, categories, and standards.

2. At home: Selected visitors interviewed at recreation areas were mailed a follow-up questionnaire after their trip to obtain information about trip-related expenditures. Information was requested to describe trip-related expenditures made at home, before or after the trip; expenditures during travel to or from the sites; and expenditures made in the immediate vicinity of the destination recreation site itself. Also, annual expenditures for durable items used on the trip were described.

3. About the site: Recreation planners or managers were asked to provide descriptions of visitation to their area so that estimates of economic importance could be extrapolated to recreation sites with attributes similar to the sites actually studied.

Bridging PARVS to IMPLAN: The Process

An important step, preliminary to impact analysis, is the allocation of PARVS consumer expenditure items to IMPLAN economic sectors. Version I of IMPLAN offered the option of using Personal Consumption Expenditure Categories to allocate portions of expenditures directly to IMPLAN sectors. Personal Consumption Expenditure Categories are highly aggregated groups of commodities or services. In an effort to examine recreation-related expenditures in greater detail, a bridge table needed to be developed which disaggregated commodity and service groups and allocated expenditures to IMPLAN sectors. Version II of IMPLAN offered potential for even more specific allocations and did not utilize Personal Consumption Expenditure categories (aggregations of production functions for somewhat similar commodities generated by the Department of Commerce).

PARVS expenditures were allocated among IMPLAN sectors based upon production function information received from the Bureau of Economic Analysis (BEA). A production function is simply a mathematical listing of the inputs used in the production of goods and services. Information from the BEA on commodity and service production cost was examined and appropriate allocations were made by determination of the relationship between national average purchase prices, production costs, transportation costs, and retail and wholesale margins. The bridge table was incorporated into a SAS computer program that computed mean expenditures per person per trip for each relevant IMPLAN sector. The mean expenditure values were then deflated to 1982 dollars, the year of the IMPLAN county level data base which was derived from the 1982 Census of Business.

Price Deflators: Documentation

Price deflators were developed specifically for bridging the PARVS to the IMPLAN analysis process. Deflators were available through 1984, but not for 1985 and 1986. Previous deflators were adapted from U.S. Department of Labor, Bureau of Labor Statistics. Deflators for 1982, 1983, and 1984 were provided by the Land Management Planning staff.

The primary source of information used to estimate deflators for 1985 and 1986 was the Survey of Current Business, February, 1987. IMPLAN sectors were matched with the appropriate consumer or producer indices which were then used to adjust for 1985 and 1986 price deflators. Producer price indices were the primary indices used. Through the "bridging" process described previously, portions of expenditures were allocated directly to production elements which dictated the use of producer price indices. Consumer price indices were used for wholesale, retail, and transportation services.

The method of calculation was as follows:

1. For the 1985 "deflator ratio", the 1985 index (Survey of Current Business, base year 1967) was divided by the 1984 index (same base year),

2. To estimate the 1985 deflator for an IMPLAN sector, the deflator ratio developed above was multiplied by the 1984 deflator value (developed by Land Management Planning from Department of Labor data). Examples were studied through several sectors for 1982, 1983, and 1984. This system appeared to be a fairly accurate estimate of previously existing deflators. The primary data source for these tables was the U.S. Department of Commerce Labor Indexes found in the Survey of Current Business.

3. For the 1986 index, monthly indicators from the Survey of Current Business were averaged to produce the annual index. Past indices examined appeared to be a current non-weighted average of monthly indicators.

4. The 1986 price deflators were calculated by first dividing the mean of 1986 monthly indicators by the 1985 index from the Survey of Current Business. Second, this ratio was multiplied by the previously calculated 1985 deflator to obtain a relative price increase for 1986.

Stratification of Interview Sites: The Sample

Sites on which PARVS data were collected were divided into strata for data analysis. Individual strata were defined from a manager/planner survey. In standard instructions, cooperators were asked to develop a logical stratification of parks to be included in sampling to allow generalization of results. In the manager/planner survey, respondents were asked to identify these strata and to select one typical, representative site for each strata. The location of representative local impact areas for North Carolina are shown in Figure 5. Data were pooled across sites within a strata and this pooled data was used to boost the sample size for the representative site. The use of a representative site enabled greater depth of analysis and more general extrapolation of results to the statewide system of parks. IMPLAN analysis was conducted only for the representative site. Generalizations beyond the sample sites are desirable. The stratification scheme and representative sites for this report are illustrated in Table 2.

The manager/planner survey respondents were also asked to provide information on use levels at representative sites (Tables 3 and 4). In the IMPLAN analysis this information is used for establishing baseline economic impacts to the defined economy. Beyond this very basic information, the interest in economic impact assessment is to determine the subsequent effects on the economy when some change in visitation occurs. For this analysis, the agency respondents were asked to provide estimates of use for the representative sites in subgroups of activity participation.

A simple classification system compatible with IMPLAN analysis and consistent with the types of sites included was developed to facilitate standard reporting of visitation and visitation impacts. The classifications chosen were 1) developed land activities, 2) dispersed land activities, and 3) water-related activities. While some uses may not occur at every representative site, the three activity groups were expected to provide insight on the economic impacts of different types of state park visitors. A further breakdown of activity types would be desirable to generate and test hypotheses about more specific changes in final demand.

Weighting the Data

The Public Area Recreation Visitor Study (PARVS) resulted in a large and complex data set. With a combined data matrix of over 40,000 cases and more than 1,100 data items per case, a uniform weighting system was needed to improve the relationship between the data describing the sample and known characteristics of the population of users. Two previously developed data sets with known relationships to the U.S. population were utilized to build a weighting procedure for the PARVS data.

First, 32 demographic strata were defined as a basis for assigning weights. These strata represented all possible combinations of four demographic characteristics: sex, age, race, and type of residence (rural/urban). After defining these 32 strata, a unique weight was computed for each. The weight computations were performed by taking the ratio of the proportion of respondents to the 1982-83 Nationwide Recreation Survey (NRS) to the proportion of PARVS respondents for each strata. If any of the strata variables sex, age, race, or type of residence were missing, a weight of 1.0 or no weight, was assigned. The National Recreation Survey was used as the base data set because it was weighted by the Bureau of the Census to the 1980 Census of Population.

The NRS also represented the same population as does PARVS (i.e., recreation participants 12 years old and older).

The 1980 Census of Population contained information about the density of population and was used to classify the urban or rural status of each U.S. county. The home county FIPS code of the interviewee was recorded in PARVS, allowing each respondent's home county to be classified by population density. Urban/rural status was defined on the basis of county population density. A density of less than 200 persons per square mile was the criterion to classify a county as "rural".

Additional information gathered through the manager/planner survey was the relative proportions of day and overnight use at each representative site. A secondary weighting using the ratio of day to overnight use (and expected vs. observed values from Table 3) was intended to weight the PARVS to proportionately represent major types of site users. Federal and state agencies cooperating in the PARVS study repeatedly pointed out the importance of the day use/overnight use dichotomy in economic impact estimation.

Expenditure Transformations

Expenditures per person per trip allocated among IMPLAN sectors, reflect the way trip and annual expenditures were distributed. Trip expenditures were divided into three categories. Of primary interest were expenditures made during the time the recreationist was visiting the recreation site, (i.e., from time of first entry to time of last exit). It is assumed that these expenditures occurred within the contiguous county region. The contiguous county region includes the county in which the interview site is located, plus those counties immediately adjacent to it. All of those expenditures made while visiting the site were allocated to this local region.

Some of the expenditures which occurred while interviewed visitors were enroute to the site or were travelling back to their point of origin likely occurred within the region of interest. The probability that some enroute expenses occur within a specified region was defined for this study as dependent upon two factors: the distance a person has travelled to get to the site and the radius of the defined region. The estimated proportion of expenditures to be allocated to the region of interest was defined as the ratio of region radius to travel distance. For example, a two person group travelling 400 miles may spend $20 on gasoline. This $10 per person per trip for gasoline is multiplied by the probability of spending in the impact region. A contiguous county region with a radius of 30 miles would yield an estimated proportion of .075 (30 divided by 400) for this particular travelling party. Therefore, 75 cents (.075 x $10) per person per trip would be entered into the calculation of a mean for gasoline expenditures. This amount would in turn be allocated across energy production, sales, and related transportation.

A third category of expenditures recorded by responding visitors were those made while at home, but which were related to the trip. These expenditures could have occurred before or after the trip. If the person resided outside the region of interest, these expenditures obviously cannot be allocated to the impact region and are irrelevant. If the person resided within the region, his/her expenditures may be allocated to the region of impact, assuming the objective is to examine the overall economic interdependence between recreation spending and the local economy. If economic impact of nonresident expenditures, (i.e., local economic growth is the objective), all at home expenditures are excluded.

Another type of expenditure recorded included those made by visitors during the year but which were not associated with any particular recreation trips or site. These expenditures, because they cannot be associated with any single trip, should be spread over an estimate of the number of relevant annual trips. These trips may all be to the same site or to many different sites. The procedure was based on what seemed logical for allocating portions of annual expenditures for recreation related goods or services such as boats or boat insurance to the impact region of interest.

Allocations included only those items which the visitor had with him/her at the site where interviewed. For those living outside the impact region, a probability that the annual expenditures occurred inside the region was developed similar to that for allocating enroute expenses. Those who lived farther from the impact region were assigned a smaller probability that the purchase of a durable item or long term service occurred in the impact region and therefore had a smaller effect on the economy in which the park is located.

Only a portion of annual expenditures were allocated to the impact region, whether or not the purchase was made inside the region. In addition to identifying equipment the interviewed visitor had with him/her, annual expenditures related to the equipment were determined. Also of importance was the amount of use the equipment had received during the 12 months prior to the interview. An amount of time the equipment was used at the site relative to the time used elsewhere during the previous 12 months provided a ratio for estimating the portion of the annual expenditures to allocate to the site. Since the common use unit for other expenditures is the trip, the number of trips the visitor made to the park as compared to all trips to any sites which the visitor had the equipment over the past year provided another division factor which is used before the gross expenditure is allocated across IMPLAN sectors.

For this analysis, reported expenditures for used equipment are not considered. The limitation is not one imposed by IMPLAN, but rather by PARVS. Foresight did not prevail to ask whether the used equipment was bought from a retail dealer or a private individual. Unless some information was available about the specific commodity item (such as purchase data on boats for a specific lake area), no assumption could be made about how a specific item was purchased. Used equipment sales do not impact an economy like new equipment sales, since manufacturing, wholesaling, and retailing are not involved.

Treatment of Multiple-Destination Trips

Some of the visitors surveyed were on a trip involving more than one site. In this case only a proportion of trip and annual expenditures could be allocated to the region of interest. The algorithm used to allocate a portion of trip expenditures to the study site was the ratio of the amount of time spent at the study site to the amount of time during the trip spent or expected to be spent while visiting other recreation sites, not including travel time. Assume that a single visitor spent $10 for gasoline during a multiple destination trip, stayed 2 hours at the study site, and planned to stay an additional 8 hours at other sites before returning home. Only $2.00 (2 divided by 10 x $10) would be allocated to the impact region attributable to the park of interest.

Results and Analyses

Local and State Models

Two types of models describing local and state economies were developed. In addition, impact analysis was performed in two ways on each model. The two basic model types were developed for each site selected to represent a strata of parks or sites. The first of these two models defined the local economy as comprised of a set of contiguous counties (Figure 5). This "contiguous county model" for each representative site was defined as the county in which the park or interview site was located plus all counties immediately adjacent to that county. In selecting a representative site for a strata, the responsible managing agency was advised by the PARVS study team to select a site best representing all of the sites within the strata, and one located in a region which typified the kind of economy of greatest interest or the kind of economy in which most sites of that strata were located. If most sites were very rural, the representative site would not have been one in or near to an urban area.

The second type of model developed for each representative site included all counties in the state. This second model represents an obviously different economy than the local contiguous county model. The economic multipliers are typically higher and a larger portion of visitor expenditures would be considered in-region expenditures because the structure of the state economy is more diverse and comprehensive and thus more of any economic activity stimulated by spending is retained, rather than "leaked" out to surrounding counties or states.

Impact and Interdependence Analyses

For both local and state models, IMPLAN analysis was performed in two ways. First, analysis was performed to determine the interdependence of recreation within the local or state economy. This interdependence analysis indicates the effects of spending stimulated by the recreation site on the magnitude and distribution economic activity among businesses, industry and workers in a region. It is not a true measure of stimulated economic growth because resident spending was included in the analysis. Resident spending is not an infusion of new money into a region. Secondly, the classic economic impact analysis was also performed. This analysis allocated mean non-resident expenditures among IMPLAN sectors. Impact analysis is normally considered an examination of the effects of external dollars coming into an economy (i.e., export of recreation opportunities). Expenditures by residents of the region are not new dollars and if the recreation site did not exist, the assumption usually adopted is that residents would spend their dollars on other goods and services within the economy.

REGION Reports: Baseline Information for Each Model

REGION is the title of an analysis module within the IMPLAN computer software. REGION reports provide the best available inventories of industrial output, primary manufacturing and production inputs, employment and income among specific sectors of the economy of a specific region of interest. An example of a sector is dairy farming. The region of interest can be no smaller than a county, since the supporting data base for IMPLAN has the county as the smallest unit of resolution. A region can be defined as any combination from a single county to a group of counties (such as the local contiguous county region), a state, or a group of states (up to the entire United States).

Numerous data sources were used to develop the REGION module data base and reporting system. Among those listed in IMPLAN documentation include the Census of Manufacturing, Dun and Bradstreet files, and County Business Patterns.

The REGION report consists of a matrix reporting selected and commonly used economic measures by individual business sectors. These individual business sectors are representative of business and manufacturing firms which operate within an impact region. The economic indicators include employee compensation, indirect business taxes, proprietary income, total industrial output, employment, total final demand, and total value added. These terms are explained in Appendix G.

ACCOUNT Reports: Opportunities for Adjustments to the REGION Models

Another IMPLAN module, ACCOUNT allows the user to make adjustments to the structure of the regional economy described by REGION. Based upon examination of the REGION reports and any other sources of information, the user is able to modify the IMPLAN data base to reflect more recent assessments of the economy.

Adjustments can be made to: 1) reduce regional supply, 2) change regional purchase coefficients, 3) modify the industry production function, and 4) disaggregate an industry and/or a commodity. Also the ACCOUNT module requests input of the estimated population of the analysis area. Table 5 indicates analysis area population estimates used for input in the ACCOUNT module.

IMPACT Reports: Changes in Final Demand from Recreation Spending

The IMPACT module provides the estimates of economic impacts resulting from an existing level of demand or upon some projected change in demand. In recreation, one measure of demand is the recreation visit. For this report, current visitation levels and changes from current levels of visitation are examined. As described earlier, all visitation figures and visitor expenditures were broken down into 3 basic activity groups: 1) developed land use, 2) dispersed land use, and 3) water related use. These three types of visitation or use do not each apply to every site. Additionally, the number of observed recreation trips to some sites for some activities was too small to be deemed useful in deriving expenditure patterns.

Current visitation levels were taken from reported levels in the manager/planner survey (Table 4). These reported visitation values were input into the IMPACT module as "current use levels" to establish the baseline contribution of this visitation population to the regional economy. To estimate the effects on the regional economy of visitation changes in these three basic activity types, each was increased by one unit (one thousand recreation visits) while the other two were held at their current levels.

While the IMPACT runs are of specific interest, a series of tables (Appendix B) has been included to show composite measurements of expenditure levels by category of purchases for the various site strata and for interdependence and impact. Appendix B contains weighted univariate descriptions of the visitors surveyed. Economic effects are presented in detail in Appendices C through F. It should again be noted that only those IMPACT runs associated with non-resident expenditures measure potential economic growth resulting from recreational spending. These are reported in Appendix C. Those IMPACT runs including both resident and non-resident expenditures measure overall economic interdependence. These are reported in Appendix D. Although economic interdependence gives useful insight on the relationships of recreation to other industries in an economy, economic growth stimulated by non-resident spending is typically of most interest and may be more appropriate for planning purposes if economic growth is important.

Implications

The economic effects of recreational expenditures on state and local economies in North Carolina are summarized in Appendix C for non-resident visitors (impact) and in Appendix D for all visitors, resident and non-resident (interdependence). Local economies contain the county in which the park or interview site is located plus all counties immediately adjacent to that county. The state economy includes all counties in North Carolina. Economic effects are shown for the current situation and three simulated development alternatives. The first development alternative results in an assumed increase of 1000 annual recreation visits as more developed land opportunity is provided (e.g., campground capacity), holding dispersed land and water related opportunities constant. The second development alternative results in an increase of 1000 annual visits from increased dispersed land opportunity (e.g., added trail miles), holding developed land and water related opportunities constant. The third development alternative results in an increase of 1000 annual visits as water related opportunity (e.g., holding reservoir water levels high throughout the fall), holding developed land and dispersed land opportunities constant. In Appendices C and D, seven major economic indicators are considered: total gross output, total income, final demand,

employee compensation, property income, value added, and employment. The economic indicators are defined in Appendix G. Additionally, these economic indicators are displayed according to type of effect (i.e., direct, indirect, induced, and total effect). These effects are explained in detail in Appendix A.

The overall economic effects of resident plus non-resident recreational expenditures are summarized in Appendix D. Because the effects of resident expenditures are included, the figures in Appendix D do not represent new economic growth resulting from recreational expenditures. These figures indicate the interdependency of recreation within a local or state economy. If recreation is highly interdependent with many businesses and other industries in a local or state economy, recreational expenditures will tend to contribute substantially to the magnitude and distribution of goods and services output, income, employment and other economic dimensions of the economy. Hence, if a park were to shut down, there may be a large "shock" to the local or state economy. The effects of this shock would eventually diminish as residents reallocate expenditures to other businesses and industries within the state or local economy. However, if residents do not reallocate expenditures within the local or state economy, the local or state economy may suffer a net loss in economic activity, especially income and jobs. This would occur, for example, if after a park shut-down, residents re-allocate expenditure to parks outside of the local or state economy.

The figures in Appendix D suggest that a relatively large amount of total gross output, income, employment, and other economic dimensions of local and state economies in North Carolina are related to recreation. This interdependency means that expenditures stimulated by recreational sites contribute to the support of many firms and industries in both local and state economies. For example, the estimates in Table D8 (Appendix D) indicate that 2975 jobs in the local economy and 3548 jobs in the state economy are related to expenditures stimulated by a single state park, Kerr Lake State Park. The estimates also indicate that total income payments of $29,347,200 in the local economy and total income payments of $51,736,800 in the state economy are related to expenditures stimulated by Kerr Lake State Park. In general, the values in Appendix D strongly suggest that recreation is an interdependent and important component of the local and state economies in North Carolina.

Other implications of recreational expenditures relate to the impacts of non-resident expenditures on economic growth in local and state economies in North Carolina. These impacts are summarized in Appendix C for the same major economic indicators considered in Appendix D. When non-residents travel to a recreational site in North Carolina, new dollars are brought in (i.e., the local or state economy "exports" recreational opportunities and receives payment for the use of those opportunities). These new dollars induce economic growth. The total economic growth impacts of current total non-resident expenditures is shown in the first two columns of Table C8. The values indicate, for example, that expenditures by visitors to Kerr Lake State Park from outside of the local region generate 2012 new jobs in the local area. Also, expenditures by visitors to Kerr Lake State Park from outside the state generate 797 new jobs in the state economy. The number of new jobs is greater locally because non-residents include not only people from outside the state, but also North Carolina residents outside the local area.

The three development alternatives in Appendix C suggest various means for attracting increased recreational visits and spending from people residing outside of a local or state economy (e.g., non-residents). The figures in Appendix C suggest that increased expenditures stimulated by each development alternative result in considerable new economic growth in both the local and state economies. For example, an increase of 1,000 dispersed land visits at Hanging Rock State Recreation Area from non-residents would result in $36,600 of new total gross output in the local economy and $126,900 of new total gross output in the state economy (Table C4). Also, an increase of 1000 dispersed land use visits at Hanging Rock State Park from non-residents would result in $15,900 of new total income in the local economy and $51,600 of new total income in the state economy.

The values in Appendix C provide a measure of the additional economic activity (e.g., income, jobs) in a local or state economy which can be directly attributed to a park. If the park was to shut down, this economic activity would be completely lost since non-residents would most likely reallocate expenditures to other parks outside of the local and or state economy. Similarly, if park management, or changes in visitation patterns, result in a reallocation of trips by non-residents away from parks in the local or state economy, the resulting decrease in economic activity would represent a net economic loss or decline of the local or state economy. Alternatively, if park management or changes in visitation patterns resulted in increased trips from non-residents to parks in a local or state economy, the resulting increase in economic activity would represent a net economic gain to the local or state economy.

It is also useful to determine the individual industry sectors that are most affected by non-resident visitation to recreation sites. This information is presented in Appendix E. Two distinct impacts are examined. First of all, those sectors in North Carolina's state economy that are most affected by out-of-state visitation are presented. Secondly, those sectors in the local impact region that are most affected by visitors residing outside of the local impact region are illustrated. Three economic indicators are presented for each impact table. For example, consider Table E4 in Appendix E. This table lists the 15 most affected local impact area individual industries as a result of visitation to Kerr Lake State Park by people residing outside of the Kerr Lake local impact area. It is easy to see that the most affected industry is "air transportation." As a result of non-impact area visitors' spending at these establishments, $7,402,400 in annual total gross output is generated. Additionally, this spending supports 88 jobs and generates $2,072,800 in total income annually.

Net economic gains and losses from changes in recreational spending can also be examined using regional economic multipliers. Recreational spending by non-residents has a multiplier effect on economic activity in a state or local area. These multiplier effects, which are composed of direct, indirect, and induced effects, are indicated by regional economic multipliers. Regional economic multipliers for management alternatives at different sites are shown in Appendix F.

The regional economic multipliers shown in Tables F1 to F5 illustrate the total change in economic activity (direct, indirect, and induced effects, defined under "Background Concepts" in first few pages of this report) per unit change in direct effect. For example, consider the employment multiplier for the developed site alternative in Table F1. For the local economy, the employment multiplier is equal to 1.28. This number multiplied by the direct effect gives the total economic effect of a change in recreational spending by non-residents. Suppose that the direct effect of increased visitation induced by a new developed site is the addition of 100 new jobs to a local economy. The multiplier suggests that after the first and all subsequent rounds of spending have been completed, a total of 128 new jobs would be added to the local economy (100 x 1.28). Similarly, suppose that the direct effect of closing a developed site is the loss of 100 jobs in a local economy. The multiplier indicates that the total effect of closing the developed site will be the loss of 128 jobs. The greater the multiplier, the greater will be the net gain (net loss) resulting from an increase (decrease) in non-resident recreational spending. Because of the potential impacts on net economic gains or losses, changes in non-resident spending resulting from changes in management or visitation patterns are important considerations in the recreation, tourism, and park planning process.

Table 1. PARVS Cooperators

Organizations	Cooperators
States	Georgia Kansas Minnesota Missouri Tennessee Indiana Virginia North Carolina South Carolina New Mexico New Jersey
Federal Agencies	President's Commission on Americans Outdoors Forest Service National Park Service Tennessee Valley Authority Corps of Engineers National Oceanic & Atmospheric Administration
National Associations	National Council State Planning Agencies National Association of State Recreation Planners National Association of State Park Directors
University of Georgia	Department of Agricultural Economics Institute for Behavioral Research

Table 2. North Carolina Site Strata

Representative Analysis Site	Representative Site Type	Strata Sites
Hanging Rock	State Parks	Stone Mountain Cliffs of the Newse Carolina Beach Fort Macon Goose Creek Weymouth Woods Hanging Rock
Kerr Lake	State Recreation Area	Kerr Lake

Table 3. North Carolina Recreational Site Usage Table

Usage Category	Expected Use*		Observed Use**		Annual Use Level
	Overnight	Day	Overnight	Day	
	(percent)		(percent)		(thousands)
HANGING ROCK					
Developed Site	28	72	69	3	100.3
Dispersed Land	30	70	42	58	53.2
Water	11	89	88	12	38.1
KERR LAKE					
Developed Site	41	59	100	0	279.9
Dispersed Land	16	84	100	0	146.7
Water	36	64	77	23	798.1

*Reported in the manager-planner survey
**Observed in the PARVS sample

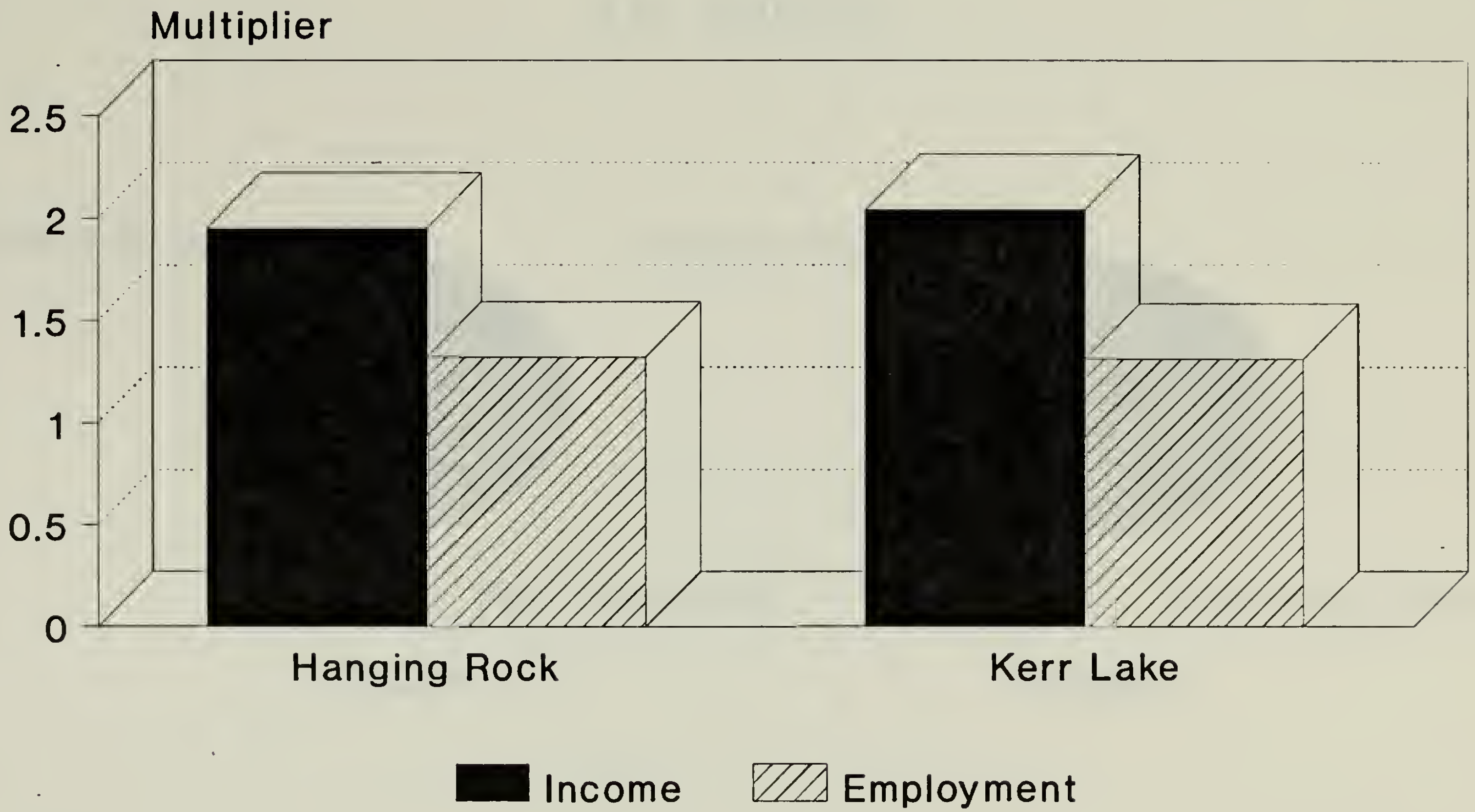
Table 4. North Carolina Recreational Site Usage by All Visitors and Non-residents

Usage Category	Annual Use Level All Visitors	Non-resident Annual Use State	Non-resident Annual Use Local
	(thousands)	(percent)	
HANGING ROCK			
Developed Site	100.3	16	62
Dispersed Land	53.2	16	62
Water	38.1	16	62
KERR LAKE			
Developed Sites	279.9	23	82
Dispersed Land	146.7	23	82
Water	798.1	23	82

Table 5. Accounts Input for North Carolina Models

Strata	Representative Site	Counties	Population	Total
1	Hanging Rock	Stokes	23,782	
		Surry	51,415	
		Forsyth	241,348	
		Rockingham	72,401	
				361,947
2	Kerr Lake	Vance	32,691	
		Granville	32,762	
		Warren	15,810	
		Franklin	26,820	108,083
State Population				5,514,900

Figure 1--Local income and employment Multipliers for North Carolina State Parks



NOTE: An employment multiplier is the ratio of additional jobs generated as a result of first and subsequent rounds of non-resident spending to the jobs created by the inital (direct) spending by non-residents

Figure 2--Economic Impact on Annual Total Income of Non-resident Spending at Selected North Carolina Parks

($ million)

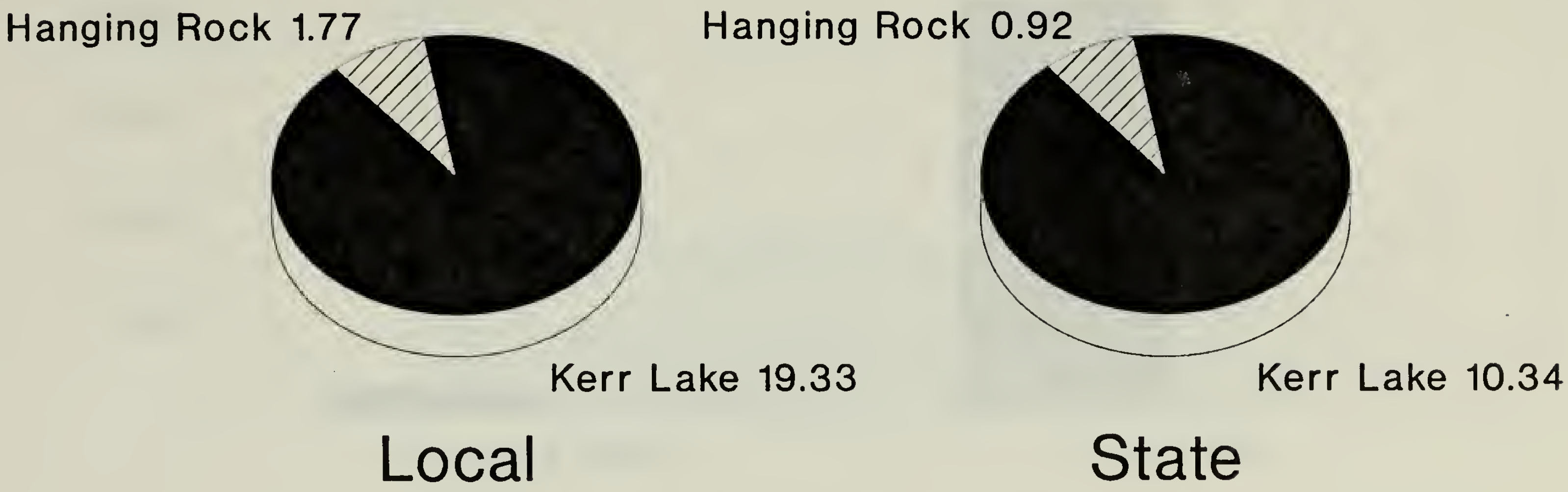


Figure X - Economic Impact on Firms' Their Income of War-related Spending of Selected North Carolina Firms (percent)

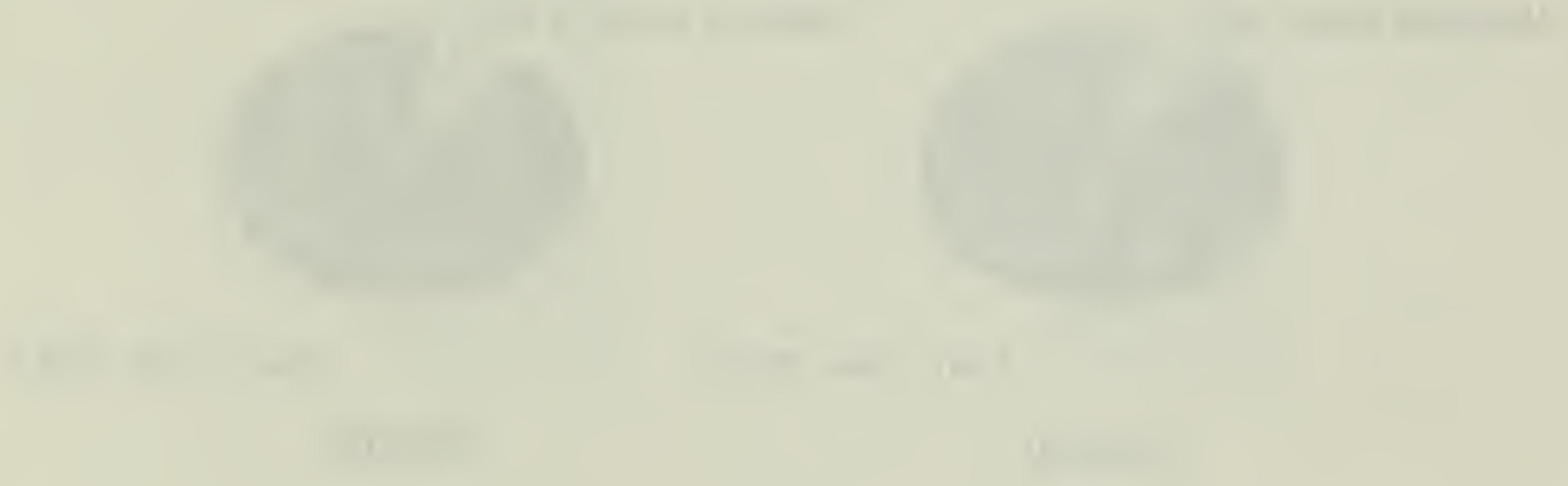


Figure 3--New Jobs Resulting from Non-resident Spending at Selected North Carolina Parks

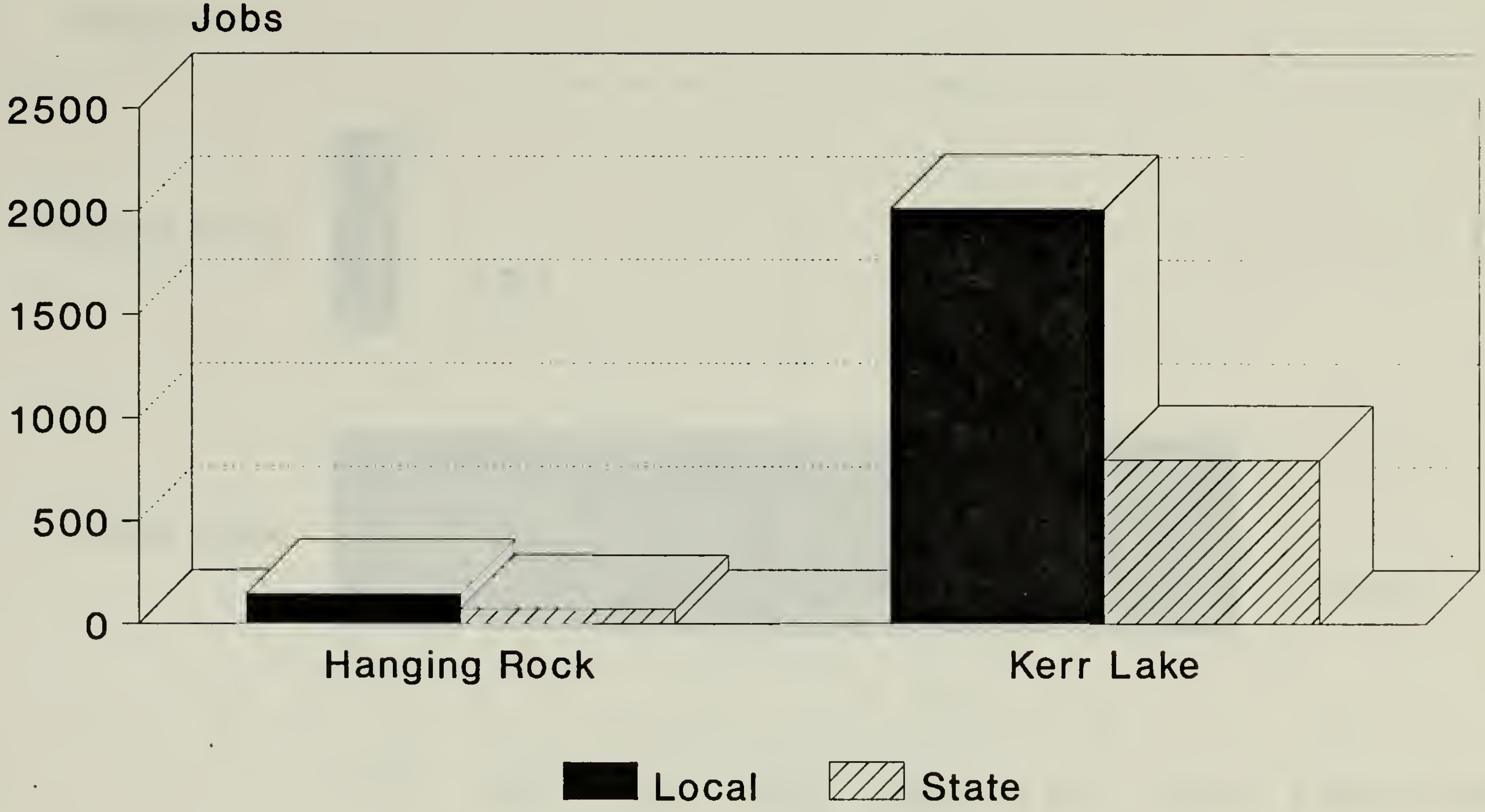


Figure 4--Total Statewide Economic Activity Associated with Selected North Carolina Parks

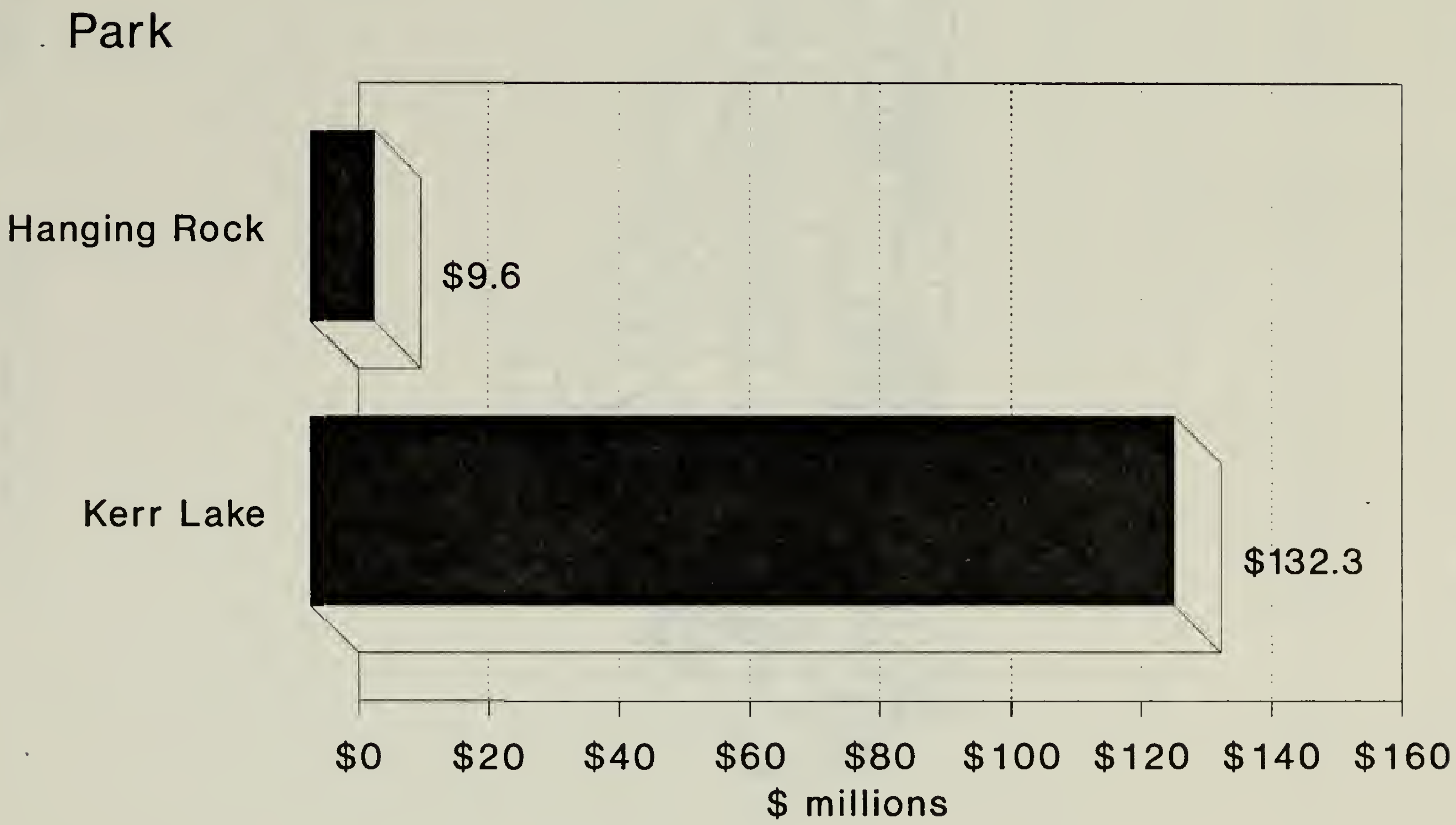


Figure [illegible] Type Strategy vs. [illegible]
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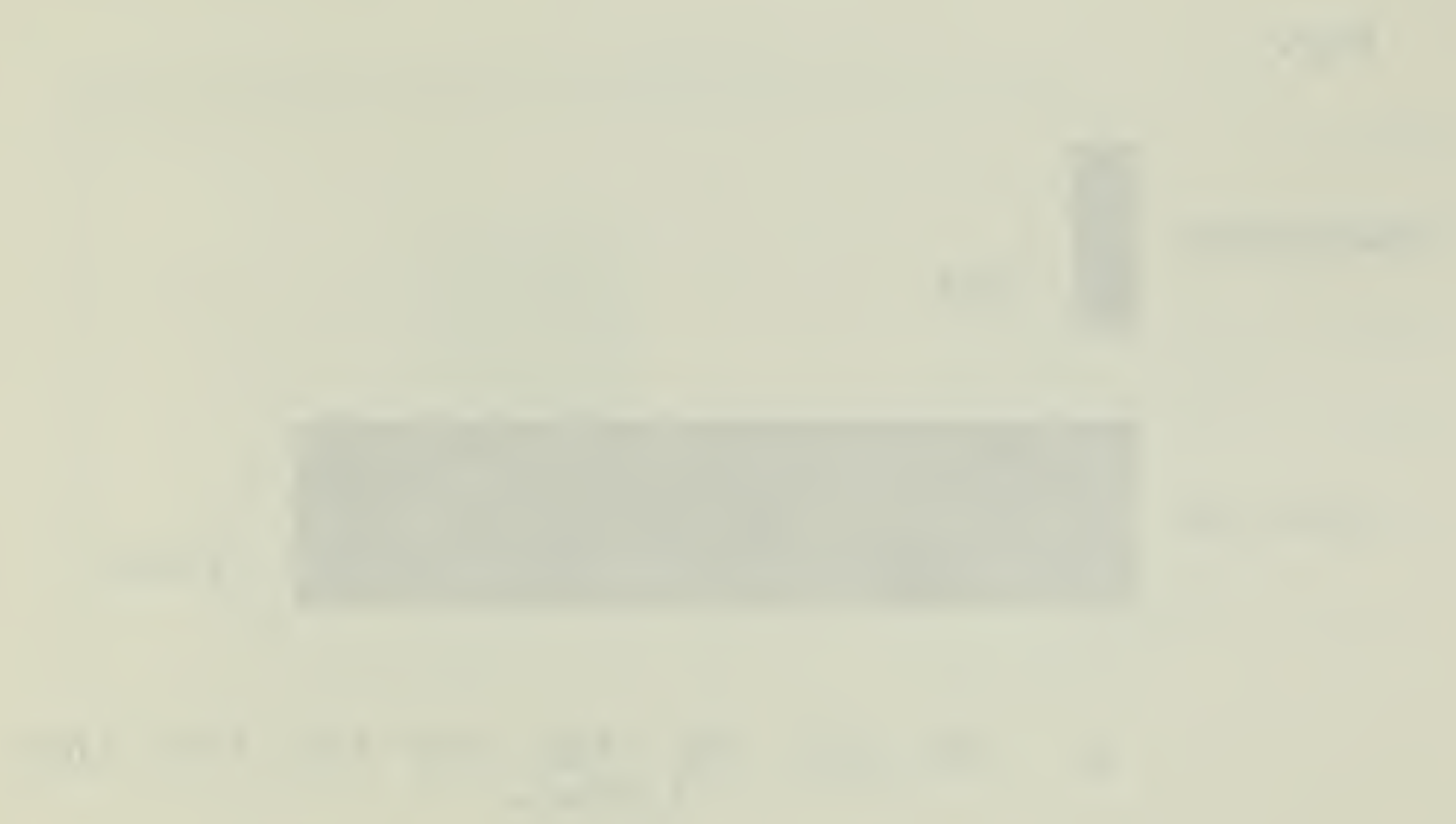
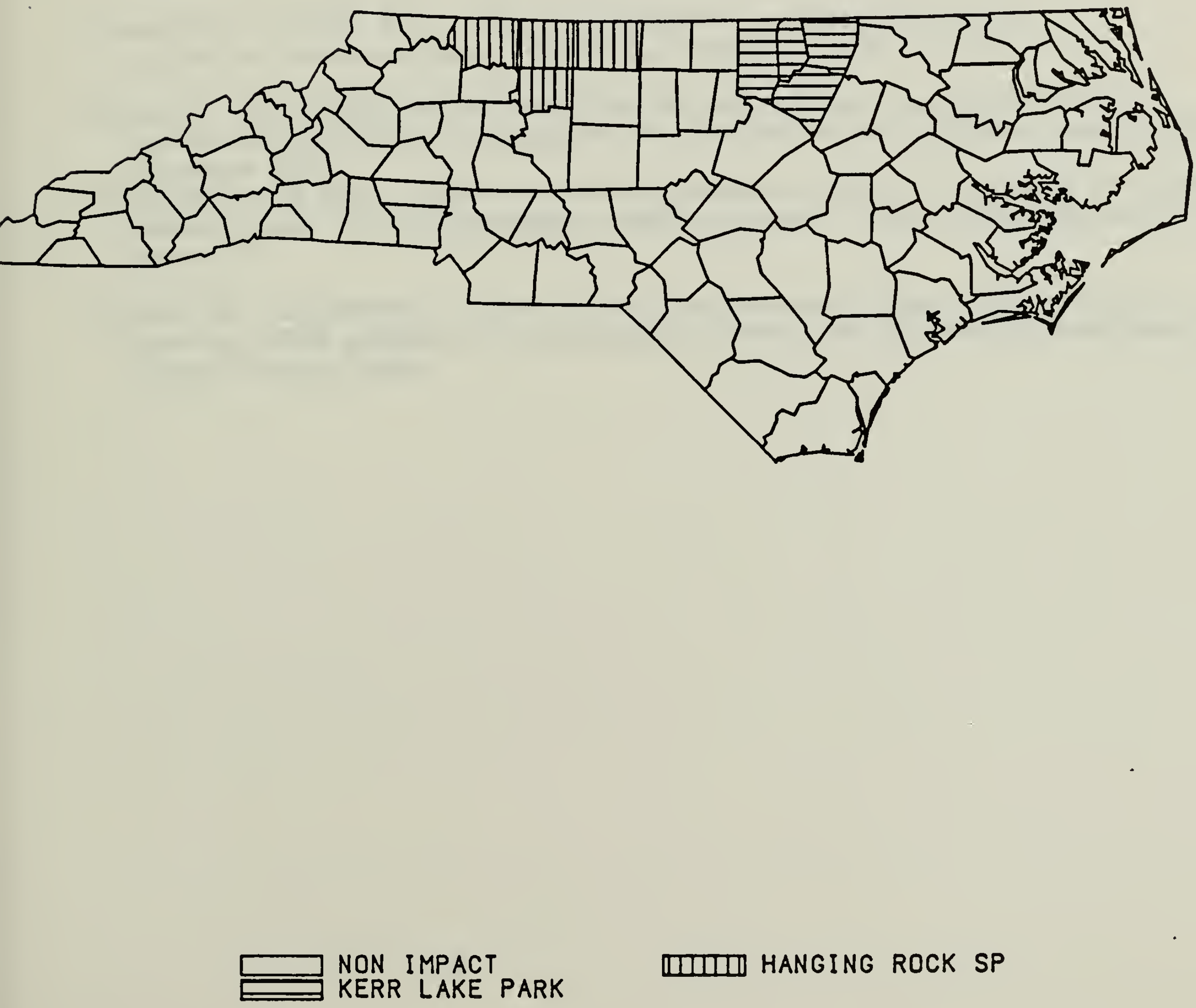


FIGURE 5. LOCAL IMPACT REGIONS FOR REPRESENTATIVE SITES IN NORTH CAROLINA



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APPENDIX A

Expansion of Discussion of Economic Concepts

ECONOMIC IMPACTS

Calculation of the economic interdependence and impact of recreation requires estimation of the direct, indirect, induced, and total effects of increases in visitor expenditures (i.e., changes in final demand). These effects were estimated with IMPLAN through the application of input-output analysis. Because of the importance of these concepts, direct, indirect, and induced effects are reviewed in this section.

Firms in a regional economy are economically interdependent. This interdependency takes the form of purchases of goods and services between firms which are needed for the production of other goods and services for final delivery to consumers. Consider a regional economy made up of three industrial sectors; agriculture, manufacturing, and financial services. Each one of these sectors produces goods or services for final delivery to consumers, as well as to one another. For example, the manufacturing sector produces cotton clothes and machinery, agriculture produces cotton and food, and the financial sector produces banking and insurance services.

In order to produce final goods and services, each sector must purchase inputs which are produced by other firms in one or more of the three sectors. For example, in order to produce cotton outdoor clothes, a clothes manufacturer would have to purchase machinery from the manufacturing sector, cotton from the agriculture sector, and banking and insurance services from the financial sector. In order to produce cotton, the agriculture sector would have to purchase machinery from the manufacturing sector and banking and insurance services from the financial services sector. In order to provide its services, the financial services sector would have to purchase machinery (e.g., computers) from the manufacturing sector and food from the agricultural sector.

Because of this interdependency between firms in the region, a change in consumer demand for the outdoor cotton clothing will tend to impact all other sectors. Suppose increased recreational visits to a region by people outside the region caused demand for cotton sports clothes to increase. The manufacturing sector must purchase inputs of three sectors in order to meet this increased demand. These additional purchases of inputs are the DIRECT EFFECTS of the increased demand for outdoor clothing.

In order to provide additional inputs to the manufacturing sector, each sector must purchase more inputs from other sectors in the economy. For example, in order to provide more cotton to the manufacturing sector, the agriculture sector would have to purchase more machinery from the manufacturing sector and more loan and insurance services from the financial services sector. These purchases by the agriculture sector would, in turn, result in even more production since the manufacturing and financial services sectors would have to increase purchases or inputs. Thus, the direct purchases of inputs by the manufacturing sector in order to increase production of cotton outdoor clothing initiates a "chain reaction" of additional purchases in the regional economy. The additional purchases of inputs needed to support the increased production of the direct increase in inputs used to produce more clothing are the INDIRECT EFFECTS of the increase in demand for cotton outdoor clothing.

The direct and indirect effects of the increase in demand for cotton outdoor clothing can result in an overall increase in the production of goods and services in the regional economy. Such an increase in economic activity results in increased employment and household income. With the increase in household income, consumer demand for goods and services could be expected to increase. For example, consumer demand for food from the agriculture sector, clothes from the manufacturing sector, and banking services from the financial services sector may increase. This increase in consumer demand would stimulate further purchases of inputs in the regional economy.

These purchases, which result from increased consumer expenditures, are the INDUCED EFFECTS of the original increase in demand for cotton outdoor clothing.

In summary, IMPLAN measures the total economic impact on the region of a net increase in consumer demand for goods and services produced by firms within the region. Total economic impact is composed of direct, indirect, and induced effects of the change in consumer demand. Direct effects are the "first round" purchases of inputs by the firm experiencing the increase in demand. Indirect effects are purchases made in the "second round", "third round", "fourth round", and so forth in order to support the production of inputs purchases in the "first round". Induced effects are increased purchases of goods and services in the region which result from increased income to households and owners of firms.

APPENDIX B

Typical User Profiles of
North Carolina State Park Visitors

Table B1. USER PROFILE FOR HANGING ROCK, NORTH CAROLINA, LOCAL ANALYSIS AREA, NON-RESIDENT VISITORS (ECONOMIC IMPACT)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	13.13
	LODGING EXPENDITURES	$/PERSON/TRIP	2.05
	TRANSPORTATION EXP	$/PERSON/TRIP	1.08
	FOOD EXPENDITURES	$/PERSON/TRIP	13.03
	MISC EXPENDITURES	$/PERSON/TRIP	0.26
	TOTAL EXPENDITURES	$/PERSON/TRIP	16.48
	DISTANCE TRAVELED	MILES	105.00*
	GROUP SIZE	PEOPLE	2.50
DISPERSED SITE USE	TIME AT SITE	HOURS	2.73
	LODGING EXPENDITURES	$/PERSON/TRIP	3.91
	TRANSPORTATION EXP	$/PERSON/TRIP	6.97
	FOOD EXPENDITURES	$/PERSON/TRIP	17.09
	MISC EXPENDITURES	$/PERSON/TRIP	1.42
	TOTAL EXPENDITURES	$/PERSON/TRIP	29.82
	DISTANCE TRAVELED	MILES	95.00*
	GROUP SIZE	PEOPLE	1.85
WATER RELATED USE	TIME AT SITE	HOURS	25.55
	LODGING EXPENDITURES	$/PERSON/TRIP	5.26
	TRANSPORTATION EXP	$/PERSON/TRIP	1.23
	FOOD EXPENDITURES	$/PERSON/TRIP	6.30
	MISC EXPENDITURES	$/PERSON/TRIP	0.43
	TOTAL EXPENDITURES	$/PERSON/TRIP	13.79
	DISTANCE TRAVELED	MILES	50.00*
	GROUP SIZE	PEOPLE	3.64

*Median value

Table B2. USER PROFILE FOR KERR LAKE, NORTH CAROLINA, LOCAL ANALYSIS AREA, NON-RESIDENT VISITORS (ECONOMIC IMPACT)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	12.65
	LODGING EXPENDITURES	$/PERSON/TRIP	0.25
	TRANSPORTATION EXP	$/PERSON/TRIP	8.25
	FOOD EXPENDITURES	$/PERSON/TRIP	12.97
	MISC EXPENDITURES	$/PERSON/TRIP	0.05
	TOTAL EXPENDITURES	$/PERSON/TRIP	22.24
	DISTANCE TRAVELED	MILES	82.50*
	GROUP SIZE	PEOPLE	3.21
DISPERSED SITE USE DATA NOT AVAILABLE			
WATER RELATED USE DATA NOT AVAILABLE			

*Median value

Table B3. USER PROFILE FOR HANGING ROCK, NORTH CAROLINA, STATE ANALYSIS AREA, RESIDENT AND NON-RESIDENT VISITORS (ECONOMIC INTERDEPENDENCE)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	15.49
	LODGING EXPENDITURES	$/PERSON/TRIP	4.24
	TRANSPORTATION EXP	$/PERSON/TRIP	3.85
	FOOD EXPENDITURES	$/PERSON/TRIP	9.79
	MISC EXPENDITURES	$/PERSON/TRIP	0.55
	TOTAL EXPENDITURES	$/PERSON/TRIP	18.56
	DISTANCE TRAVELED	MILES	75.00*
	GROUP SIZE	PEOPLE	3.03
DISPERSED SITE USE	TIME AT SITE	HOURS	2.96
	LODGING EXPENDITURES	$/PERSON/TRIP	8.61
	TRANSPORTATION EXP	$/PERSON/TRIP	13.50
	FOOD EXPENDITURES	$/PERSON/TRIP	23.59
	MISC EXPENDITURES	$/PERSON/TRIP	2.11
	TOTAL EXPENDITURES	$/PERSON/TRIP	48.17
	DISTANCE TRAVELED	MILES	50.50*
	GROUP SIZE	PEOPLE	1.89
WATER RELATED USE	TIME AT SITE	HOURS	16.64
	LODGING EXPENDITURES	$/PERSON/TRIP	5.48
	TRANSPORTATION EXP	$/PERSON/TRIP	2.93
	FOOD EXPENDITURES	$/PERSON/TRIP	9.02
	MISC EXPENDITURES	$/PERSON/TRIP	0.97
	TOTAL EXPENDITURES	$/PERSON/TRIP	18.98
	DISTANCE TRAVELED	MILES	30.00*
	GROUP SIZE	PEOPLE	3.58

*Median value

Table B4. USER PROFILE FOR KERR LAKE, NORTH CAROLINA, STATE ANALYSIS AREA, RESIDENT AND NON-RESIDENT VISITORS (ECONOMIC INTERDEPENDENCE)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	11.07
	LODGING EXPENDITURES	$/PERSON/TRIP	0.23
	TRANSPORTATION EXP	$/PERSON/TRIP	10.99
	FOOD EXPENDITURES	$/PERSON/TRIP	36.06
	MISC EXPENDITURES	$/PERSON/TRIP	3.71
	TOTAL EXPENDITURES	$/PERSON/TRIP	51.89
	DISTANCE TRAVELED	MILES	82.50*
	GROUP SIZE	PEOPLE	3.58
DISPERSED SITE USE	TIME AT SITE	HOURS	39.72
	LODGING EXPENDITURES	$/PERSON/TRIP	0.70
	TRANSPORTATION EXP	$/PERSON/TRIP	13.84
	FOOD EXPENDITURES	$/PERSON/TRIP	36.92
	MISC EXPENDITURES	$/PERSON/TRIP	2.40
	TOTAL EXPENDITURES	$/PERSON/TRIP	53.91
	DISTANCE TRAVELED	MILES	67.50*
	GROUP SIZE	PEOPLE	4.09
WATER RELATED USE DATA NOT AVAILABLE			

*Median value

Table B5. USER PROFILE FOR HANGING ROCK, NORTH CAROLINA, STATE ANALYSIS AREA, NON-RESIDENT VISITORS (ECONOMIC IMPACT)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE DATA NOT AVAILABLE			
DISPERSED SITE USE	TIME AT SITE	HOURS	2.95
	LODGING EXPENDITURES	$/PERSON/TRIP	6.60
	TRANSPORTATION EXP	$/PERSON/TRIP	15.22
	FOOD EXPENDITURES	$/PERSON/TRIP	21.56
	MISC EXPENDITURES	$/PERSON/TRIP	1.36
	TOTAL EXPENDITURES	$/PERSON/TRIP	45.28
	DISTANCE TRAVELED	MILES	660.00*
	GROUP SIZE	PEOPLE	1.98
WATER RELATED USE DATA NOT AVAILABLE			

*Median value

Table B6. USER PROFILE FOR KERR LAKE, NORTH CAROLINA, STATE ANALYSIS AREA, NON-RESIDENT VISITORS (ECONOMIC IMPACT)

DEVELOPED SITE USE DATA NOT AVAILABLE

DISPERSED SITE USE DATA NOT AVAILABLE

WATER RELATED USE DATA NOT AVAILABLE

Table B7. USER PROFILE FOR HANGING ROCK, NORTH CAROLINA, LOCAL ANALYSIS AREA, RESIDENT AND NON-RESIDENT VISITORS (ECONOMIC INTERDEPENDENCE)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	15.49
	LODGING EXPENDITURES	$/PERSON/TRIP	3.30
	TRANSPORTATION EXP	$/PERSON/TRIP	2.49
	FOOD EXPENDITURES	$/PERSON/TRIP	7.12
	MISC EXPENDITURES	$/PERSON/TRIP	0.41
	TOTAL EXPENDITURES	$/PERSON/TRIP	13.43
	DISTANCE TRAVELED	MILES	75.00*
	GROUP SIZE	PEOPLE	3.03
DISPERSED SITE USE	TIME AT SITE	HOURS	2.96
	LODGING EXPENDITURES	$/PERSON/TRIP	4.30
	TRANSPORTATION EXP	$/PERSON/TRIP	8.30
	FOOD EXPENDITURES	$/PERSON/TRIP	19.79
	MISC EXPENDITURES	$/PERSON/TRIP	1.79
	TOTAL EXPENDITURES	$/PERSON/TRIP	34.56
	DISTANCE TRAVELED	MILES	50.50*
	GROUP SIZE	PEOPLE	1.90
WATER RELATED USE	TIME AT SITE	HOURS	16.64
	LODGING EXPENDITURES	$/PERSON/TRIP	5.18
	TRANSPORTATION EXP	$/PERSON/TRIP	1.90
	FOOD EXPENDITURES	$/PERSON/TRIP	6.18
	MISC EXPENDITURES	$/PERSON/TRIP	0.45
	TOTAL EXPENDITURES	$/PERSON/TRIP	14.14
	DISTANCE TRAVELED	MILES	30.00*
	GROUP SIZE	PEOPLE	3.22

*Median value

Table B8. USER PROFILE FOR KERR LAKE, NORTH CAROLINA, LOCAL ANALYSIS AREA, RESIDENT AND NON-RESIDENT VISITORS (ECONOMIC INTERDEPENDENCE)

USER TYPE	VARIABLE	UNIT	MEAN
DEVELOPED SITE USE	TIME AT SITE	HOURS	11.07
	LODGING EXPENDITURES	$/PERSON/TRIP	0.22
	TRANSPORTATION EXP	$/PERSON/TRIP	8.44
	FOOD EXPENDITURES	$/PERSON/TRIP	12.26
	MISC EXPENDITURES	$/PERSON/TRIP	0.12
	TOTAL EXPENDITURES	$/PERSON/TRIP	21.90
	DISTANCE TRAVELED	MILES	82.50*
	GROUP SIZE	PEOPLE	3.58
DISPERSED SITE USE	TIME AT SITE	HOURS	39.72
	LODGING EXPENDITURES	$/PERSON/TRIP	0.54
	TRANSPORTATION EXP	$/PERSON/TRIP	10.77
	FOOD EXPENDITURES	$/PERSON/TRIP	23.08
	MISC EXPENDITURES	$/PERSON/TRIP	0.16
	TOTAL EXPENDITURES	$/PERSON/TRIP	34.61
	DISTANCE TRAVELED	MILES	67.50*
	GROUP SIZE	PEOPLE	4.09

WATER RELATED USE DATA NOT AVAILABLE

*Median value

APPENDIX C

Annual Economic Impact of Non-resident Visitation to North Carolina State Parks

Table C1. DIRECT ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	2.3817	1.1579	0.0267	NA	0.0217	0.0712	0.0172	NA
TOTAL GROSS OUTPUT	2.3817	1.1579	0.0267	NA	0.0217	0.0712	0.0172	NA
EMPLOYEE COMP	0.6742	0.2952	0.0074	NA	0.0062	0.0179	0.0049	NA
PROPERTY INCOME	0.2338	0.1337	0.0024	NA	0.0023	0.0083	0.0017	NA
TOTAL INCOME	0.9080	0.4288	0.0099	NA	0.0085	0.0262	0.0066	NA
VALUE ADDED	1.0288	0.4814	0.0111	NA	0.0097	0.0295	0.0074	NA
EMPLOYMENT (# JOBS)	109.53	51.76	1.09	NA	1.12	3.18	0.7500	NA

Table C2. INDIRECT ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	0.0000	0.0000	0.0000	NA	0.0000	0.0000	0.0000	NA
TOTAL GROSS OUTPUT	0.4731	0.3295	0.0051	NA	0.0044	0.0199	0.0035	NA
EMPLOYEE COMP	0.1180	0.0757	0.0013	NA	0.0011	0.0046	0.0009	NA
PROPERTY INCOME	0.0889	0.0542	0.0010	NA	0.0008	0.0033	0.0007	NA
TOTAL INCOME	0.2070	0.1299	0.0022	NA	0.0019	0.0078	0.0016	NA
VALUE ADDED	0.2274	0.1408	0.0025	NA	0.0021	0.0085	0.0017	NA
EMPLOYMENT (# JOBS)	7.06	4.77	0.08	NA	0.06	0.29	0.05	NA

Table C3. INDUCED ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

			EFFECTS PER 1000 VISIT INCREASE					
ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	1.0990	0.5969	0.0089	NA	0.0090	0.0289	0.0061	NA
TOTAL GROSS OUTPUT	1.2825	0.7374	0.0104	NA	0.0105	0.0357	0.0072	NA
EMPLOYEE COMP	0.3613	0.2020	0.0029	NA	0.0030	0.0098	0.0020	NA
PROPERTY INCOME	0.2966	0.1597	0.0024	NA	0.0024	0.0077	0.0017	NA
TOTAL INCOME	0.6578	0.3617	0.0054	NA	0.0054	0.0175	0.0037	NA
VALUE ADDED	0.7548	0.4114	0.0061	NA	0.0062	0.0199	0.0042	NA
EMPLOYMENT (# JOBS)	28.16	15.70	0.23	NA	0.23	0.76	0.16	NA

Stow (3/4)

+ 100/110 jobs

Table C4. TOTAL ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	3.4806	1.7549	0.0356	NA	0.0307	0.1001	0.0234	NA
TOTAL GROSS OUTPUT	4.1372	2.2249	0.0423	NA	0.0366	0.1269	0.0279	NA
EMPLOYEE COMP	1.1535	0.5729	0.0117	NA	0.0103	0.0323	0.0078	NA
PROPERTY INCOME	0.6193	0.3475	0.0058	NA	0.0056	0.0193	0.0040	NA
TOTAL INCOME	1.7728	0.9204	0.0175	NA	0.0159	0.0516	0.0119	NA
VALUE ADDED	2.0110	1.0337	0.0198	NA	0.0180	0.0579	0.0134	NA
EMPLOYMENT (# JOBS)	144.76	72.23	1.40	NA	1.41	4.23	0.96	NA

Table C5. DIRECT ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	24.9878	13.2810	0.0133	NA	NA	NA	NA	NA
TOTAL GROSS OUTPUT	24.9878	13.2810	0.0133	NA	NA	NA	NA	NA
EMPLOYEE COMP	7.3860	3.6437	0.0045	NA	NA	NA	NA	NA
PROPERTY INCOME	2.0693	1.2983	0.0016	NA	NA	NA	NA	NA
TOTAL INCOME	9.4554	4.9420	0.0060	NA	NA	NA	NA	NA
VALUE ADDED	11.0532	5.6580	0.0071	NA	NA	NA	NA	NA
EMPLOYMENT (# JOBS)	1537.58	568.99	1.08	NA	NA	NA	NA	NA

Table C6. INDIRECT ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	0.0000	0.0000	0.0000	NA	NA	NA	NA	NA
TOTAL GROSS OUTPUT	3.7550	3.8933	0.0026	NA	NA	NA	NA	NA
EMPLOYEE COMP	1.1372	0.7934	0.0007	NA	NA	NA	NA	NA
PROPERTY INCOME	0.6437	0.5855	0.0005	NA	NA	NA	NA	NA
TOTAL INCOME	1.7809	1.3789	0.0012	NA	NA	NA	NA	NA
VALUE ADDED	1.9176	1.4845	0.0013	NA	NA	NA	NA	NA
EMPLOYMENT (# JOBS)	73.51	53.36	0.04	NA	NA	NA	NA	NA

Table C7. INDUCED ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	13.4514	6.6383	NA	NA	NA	NA	NA	NA
TOTAL GROSS OUTPUT	15.0598	8.2008	NA	NA	NA	NA	NA	NA
EMPLOYEE COMP	4.3596	2.2468	NA	NA	NA	NA	NA	NA
PROPERTY INCOME	3.7308	1.7755	NA	NA	NA	NA	NA	NA
TOTAL INCOME	8.0904	4.0223	NA	NA	NA	NA	NA	NA
VALUE ADDED	9.3163	4.5755	NA	NA	NA	NA	NA	NA
EMPLOYMENT (# JOBS)	400.95	174.56	NA	NA	NA	NA	NA	NA

Table C8. TOTAL ANNUAL ECONOMIC IMPACT OF NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	38.4392	19.9192	0.0218	NA	NA	NA	NA	NA
TOTAL GROSS OUTPUT	43.8026	25.3751	0.0259	NA	NA	NA	NA	NA
EMPLOYEE COMP	12.8828	6.6839	0.0080	NA	NA	NA	NA	NA
PROPERTY INCOME	6.4439	3.6593	0.0044	NA	NA	NA	NA	NA
TOTAL INCOME	19.3267	10.3432	0.0124	NA	NA	NA	NA	NA
VALUE ADDED	22.2871	11.7179	0.0143	NA	NA	NA	NA	NA
EMPLOYMENT (# JOBS)	2012.05	796.91	1.34	NA	NA	NA	NA	NA

APPENDIX D

Annual Economic Interdependence of Resident and Non-resident Visitation to North Carolina State Parks

Table D1. DIRECT ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	3.2662	5.1377	0.0228	0.0338	0.0188	0.0312	0.0120	0.0177
TOTAL GROSS OUTPUT	3.2662	5.1377	0.0228	0.0338	0.0188	0.0312	0.0120	0.0177
EMPLOYEE COMP	0.9200	1.2858	0.0064	0.0086	0.0053	0.0077	0.0035	0.0047
PROPERTY INCOME	0.3286	0.5711	0.0021	0.0036	0.0020	0.0036	0.0012	0.0019
TOTAL INCOME	1.2485	1.8569	0.0085	0.0121	0.0074	0.0113	0.0047	0.0066
VALUE ADDED	1.4220	2.0989	0.0096	0.0137	0.0085	0.0128	0.0053	0.0075
EMPLOYMENT (# JOBS)	158.55	216.87	0.99	1.38	1.02	1.36	0.55	0.72

Table D2. INDIRECT ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TOTAL GROSS OUTPUT	0.6326	1.3947	0.0044	0.0091	0.0037	0.0085	0.0024	0.0048
EMPLOYEE COMP	0.1540	0.3132	0.0011	0.0020	0.0009	0.0018	0.0006	0.0010
PROPERTY INCOME	0.1167	0.2211	0.0008	0.0014	0.0007	0.0013	0.0004	0.0008
TOTAL INCOME	0.2708	0.5343	0.0019	0.0034	0.0016	0.0032	0.0010	0.0018
VALUE ADDED	0.2973	0.5784	0.0021	0.0037	0.0017	0.0035	0.0011	0.0020
EMPLOYMENT (# JOBS)	9.27	20.01	0.07	0.13	0.05	0.12	0.03	0.07

Table D3. INDUCED ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

			EFFECTS PER 1000 VISIT INCREASE					
ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	----------(million $)----------							
FINAL DEMAND	1.5915	2.5221	0.0081	0.0126	0.0082	0.0123	0.0045	0.0066
TOTAL GROSS OUTPUT	1.8573	3.1158	0.0094	0.0156	0.0096	0.0152	0.0052	0.0081
EMPLOYEE COMP	0.5232	0.8537	0.0026	0.0042	0.0027	0.0041	0.0015	0.0022
PROPERTY INCOME	0.4295	0.6746	0.0022	0.0034	0.0022	0.0033	0.0012	0.0018
TOTAL INCOME	0.9527	1.5282	0.0048	0.0076	0.0049	0.0074	0.0027	0.0040
VALUE ADDED	1.0931	1.7384	0.0055	0.0087	0.0056	0.0085	0.0031	0.0045
EMPLOYMENT (# JOBS)	40.79	66.32	0.21	0.33	0.21	0.32	0.11	0.17

Table D4. TOTAL ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO HANGING ROCK STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	4.8577	7.6598	0.0309	0.0465	0.0270	0.0435	0.0165	0.0243
TOTAL GROSS OUTPUT	5.7561	9.6481	0.0366	0.0586	0.0321	0.0549	0.0196	0.0306
EMPLOYEE COMP	1.5971	2.4527	0.0101	0.0149	0.0089	0.0137	0.0055	0.0079
PROPERTY INCOME	0.8748	1.4667	0.0051	0.0084	0.0049	0.0083	0.0028	0.0045
TOTAL INCOME	2.4719	3.9194	0.0152	0.0233	0.0139	0.0220	0.0084	0.0124
VALUE ADDED	2.8124	4.4157	0.0172	0.0262	0.0158	0.0248	0.0095	0.0139
EMPLOYMENT (# JOBS)	208.61	303.21	1.26	1.85	1.28	1.81	0.70	0.96

Table D5. DIRECT ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	40.2726	75.7015	0.0118	0.0710	0.1325	0.3252	NA	NA
TOTAL GROSS OUTPUT	40.2726	75.7015	0.0118	0.0710	0.1325	0.3252	NA	NA
EMPLOYEE COMP	12.1978	20.2703	0.0041	0.0201	0.0391	0.0879	NA	NA
PROPERTY INCOME	2.4801	5.4429	0.0012	0.0036	0.0053	0.0182	NA	NA
TOTAL INCOME	14.6779	25.7132	0.0053	0.0237	0.0443	0.1061	NA	NA
VALUE ADDED	17.0436	29.3659	0.0063	0.0275	0.0510	0.1205	NA	NA
EMPLOYMENT (# JOBS)	2265.40	2459.64	0.87	2.51	5.74	8.23	NA	NA

Table D6. INDIRECT ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	------(million $)------							
FINAL DEMAND	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	NA	NA
TOTAL GROSS OUTPUT	5.9951	20.0366	0.0025	0.0212	0.0200	0.0752	NA	NA
EMPLOYEE COMP	1.7458	5.1337	0.0008	0.0054	0.0060	0.0213	NA	NA
PROPERTY INCOME	0.9571	2.9745	0.0005	0.0032	0.0029	0.0108	NA	NA
TOTAL INCOME	2.7029	8.1082	0.0013	0.0086	0.0089	0.0322	NA	NA
VALUE ADDED	2.9038	8.7120	0.0014	0.0092	0.0095	0.0347	NA	NA
EMPLOYMENT (# JOBS)	116.95	311.20	0.04	0.30	0.40	1.25	NA	NA

Table D7. INDUCED ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

			EFFECTS PER 1000 VISIT INCREASE					
ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	19.8958	29.5667	0.0069	0.0234	0.0492	0.0963	NA	NA
TOTAL GROSS OUTPUT	22.2747	36.5263	0.0081	0.0290	0.0551	0.1190	NA	NA
EMPLOYEE COMP	6.4483	10.0073	0.0023	0.0079	0.0160	0.0324	NA	NA
PROPERTY INCOME	5.5182	7.9080	0.0019	0.0063	0.0137	0.0257	NA	NA
TOTAL INCOME	11.9665	17.9153	0.0041	0.0142	0.0296	0.0581	NA	NA
VALUE ADDED	13.7796	20.3790	0.0048	0.0161	0.0341	0.0661	NA	NA
EMPLOYMENT (# JOBS)	593.05	777.48	0.18	0.61	1.47	2.51	NA	NA

Table D8. TOTAL ANNUAL ECONOMIC INTERDEPENDENCE OF RESIDENT AND NON-RESIDENT VISITATION TO KERR LAKE STATE PARK

ECONOMIC INTERDEP. EFFECT	EFFECTS OF CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
	(million $)							
FINAL DEMAND	60.1685	105.268	0.0187	0.0945	0.1818	0.4215	NA	NA
TOTAL GROSS OUTPUT	68.5424	132.264	0.0224	0.1212	0.2077	0.5193	NA	NA
EMPLOYEE COMP	20.3918	35.4113	0.0072	0.0334	0.0610	0.1416	NA	NA
PROPERTY INCOME	8.9554	16.3254	0.0035	0.0131	0.0218	0.0547	NA	NA
TOTAL INCOME	29.3472	51.7368	0.0107	0.0465	0.0829	0.1964	NA	NA
VALUE ADDED	33.7270	58.4568	0.0125	0.0529	0.0947	0.2213	NA	NA
EMPLOYMENT (# JOBS)	2975.39	3548.33	1.08	3.43	7.60	12.00	NA	NA

APPENDIX E

Annual Economic Impact of Non-resident Visitation on Most Affected Industry Sectors

Table E1. ANNUAL ECONOMIC IMPACT OF OUT-OF-STATE VISITATION TO HANGING ROCK BY MOST AFFECTED SECTORS IN NORTH CAROLINA

SECTORS	TOTAL GROSS OUTPUT	TOTAL INCOME	EMPLOYMENT
	(MILLION $)	(MILLION $)	(JOBS)
1. Hotels and Lodging	0.3463	0.1364	15.51
2. Eating and Drinking Est	0.3032	0.1109	11.35
3. Retail Trade*	0.1675	0.0965	7.50
4. Owner-Occupied Dwellings	0.1005	0.0638	0.00
5. Lubricating Oils	0.0777	0.0211	0.42
6. Petroleum and Coal Prod	0.0776	0.0302	0.44
7. Real Estate	0.0692	0.0459	0.43
8. Petroleum Refining	0.0554	0.0035	0.04
9. Wholesale Trade**	0.0553	0.0300	NA
10. Electric Service	0.0419	0.0189	0.22
11. Meat Packing Plants	0.0419	0.0042	0.20
12. Maintenance and Repairs	0.0381	0.0183	0.68
13. Bottled, Canned Soft Drink	0.0093	0.0023	0.11
14. Banking	0.0261	0.0147	0.56
15. Communications, except Radio, TV	0.0250	0.0202	0.43

*Other retail trade inclusive not elsewhere reported

**Other wholesale trade inclusive not elsewhere represented

Table E2. ANNUAL ECONOMIC IMPACT OF NON-LOCAL VISITATION TO HANGING ROCK BY MOST AFFECTED SECTORS IN HANGING ROCK LOCAL IMPACT AREA

SECTORS	TOTAL GROSS OUTPUT	TOTAL INCOME	EMPLOYMENT
	(MILLION $)	(MILLION $)	(JOBS)
1. Hotels and Lodging	0.6700	0.2640	31.82
2. Eating and Drinking Est	0.6095	0.2230	22.38
3. Retail Trade*	0.3608	0.2078	15.73
4. Air Transportation	0.3162	0.0885	2.26
5. Owner-Occupied Dwellings	0.2048	0.1300	0.00
6. Real Estate	0.1374	0.0912	0.88
7. Lubricating Oils	0.1373	0.0372	1.04
8. Wholesale Trade**	0.1162	0.0630	NA
9. Electric Service	0.0863	0.0390	0.45
10. Insurance Carriers	0.0691	0.0167	1.20
11. Sausage and Other Prep	0.0651	0.0125	0.38
12. Recreation Related Retail	0.0597	0.0344	2.71
13. Maintenance and Repair	0.0577	0.0276	0.93
14. Fluid Milk	0.0571	0.0135	0.42
15. Doctors and Dentists	0.0563	0.0340	0.64

*Other retail trade inclusive not elsewhere reported

**Other wholesale trade inclusive not elsewhere reported

Table E3. ANNUAL ECONOMIC IMPACT OF OUT-OF-STATE VISITATION TO KERR LAKE BY MOST AFFECTED SECTORS IN NORTH CAROLINA

SECTORS	TOTAL GROSS OUTPUT	TOTAL INCOME	EMPLOYMENT
	(MILLION $)	(MILLION $)	(JOBS)
1. Retail Trade*	2.8059	1.6159	125.58
2. Owner-Occupied Dwellings	1.1188	0.7098	0.0000
3. Boat Building and Repair	1.0099	0.1474	8.9700
4. Wholesale Trade**	0.9377	0.5084	NA
5. Recreation Related Retail	0.9205	0.5301	42.300
6. Meat Packing Plants	0.8342	0.0827	3.9500
7. Real Estate	0.6909	0.4583	4.3400
8. Sausages and Other Prep	0.6139	0.1176	2.8800
9. Photofinishing	0.6133	0.3908	12.540
10. Eating and Drinking Est	0.6112	0.2236	22.880
11. Fluid Milk	0.5810	0.1372	4.2600
12. Hotels and Lodging	0.4876	0.1921	21.840
13. Lubricating Oils	0.4282	0.1160	2.3100
14. Petroleum and Coal Prod	0.4266	0.1662	2.4300
15. Insurance Carriers	0.4245	0.1026	7.4500

*Other retail trade inclusive not elsewhere reported
**Other wholesale trade inclusive not elsewhere reported

Table E4. ANNUAL ECONOMIC IMPACT OF NON-LOCAL VISITATION TO KERR LAKE BY MOST AFFECTED SECTORS IN KERR LAKE LOCAL IMPACT AREA

SECTORS	TOTAL GROSS OUTPUT	TOTAL INCOME	EMPLOYMENT
	(MILLION $)	(MILLION $)	(JOBS)
1. Air Transportation	7.4024	2.0728	87.980
2. Retail Trade*	6.7809	3.9051	345.12
3. Owner-Occupied Dwellings	2.9778	1.8910	0.0000
4. Eating and Drinking Est	2.3425	0.8570	86.150
5. Insurance Carriers	2.2775	0.5506	82.520
6. Wholesale Trade**	2.2755	1.2338	951.25
7. Petroleum Refining	1.4883	0.0945	0.9000
8. Real Estate	1.2516	0.8236	7.5000
9. Fluid Milk	1.1193	0.2643	8.5300
10. Motor Freight Trans	1.0624	0.6047	27.090
11. Hotels and Lodging	1.0107	0.3982	48.530
12. Recreation Related Retail	0.9784	0.5635	51.120
13. Automobile Repair	0.8595	0.3634	12.710
14. State and Local Govt	0.7985	0.3098	15.780
15. Doctors and Dentists	0.7936	0.4791	12.680

*Other retail trade inclusive not elsewhere reported
**Other wholesale trade inclusive not elsewhere reported

APPENDIX F

Multipliers for Non-resident Recreation Expenditures at North Carolina State Parks

Table F1. MULTIPLIERS FOR NON-RESIDENT RECREATION EXPENDITURES AT HANGING ROCK STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
TOTAL GROSS OUTPUT	1.74	1.92	1.58	NA	1.69	1.78	1.62	NA
TOTAL INCOME	1.95	2.15	1.77	NA	1.87	1.97	1.80	NA
EMPLOYMENT	1.32	1.40	1.28	NA	1.26	1.33	1.28	NA

Table F2. MULTIPLIERS FOR NON-RESIDENT RECREATION EXPENDITURES AT KERR LAKE STATE PARK

ECONOMIC IMPACT EFFECT	EFFECTS CURRENT USE		EFFECTS PER 1000 VISIT INCREASE					
			DEVELOPED SITE USE		DISPERSED LAND USE		WATER RELATED USE	
	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE	LOCAL	STATE
TOTAL GROSS OUTPUT	1.75	1.91	1.79	NA	NA	NA	NA	NA
TOTAL INCOME	2.04	2.09	2.04	NA	NA	NA	NA	NA
EMPLOYMENT	1.31	1.40	1.25	NA	NA	NA	NA	NA

APPENDIX G

Glossary

AGGREGATION. The combining of geographic area, business firms (economic activities), or time of an economy. Grouping business activities into one sector or combining sectors within a regional I-O model reduces the number of sectors or size of the model.

CAPITAL FORMATION. Total purchases by firms in the region as investment (land, plant and equipment, etc. used in the production process), from sectors both inside and outside the region.

COMPETITIVE IMPORTS. Purchases of outputs (used in the production process) by industries and (consumed) consumers in the region from producing industries outside the region. There are sectors inside the region that produce the same product; however, they are not large enough to supply all that is demanded by the local industries and consumers. Therefore, they must import to fill their needs. They are competitive imports because they are competing with products produced by industries inside the region.

CROSS-HAULING. The transportation of processed goods across an impact area to another industry or consumer outside the impact area. The source of goods can either be inside or outside the impact area. Cross-hauling includes goods that are imported to the area for an industry that also exports the same product.

DIRECT EMPLOYMENT COEFFICIENTS. Base year total employment of a sector divided by its base year total gross outputs . The coefficient represents persons employed (jobs not person years) per million dollars of total gross output.

DIRECT EMPLOYMENT CHANGE. The change in employment of a sector in response to a change in final demand for its output (the direct employment coefficient times a change in final demand).

DIRECT COEFFICIENTS. The dollar value of inputs required by purchasing industry from a selling industry in order for the purchasing industry to produce a dollar's worth of output. Direct coefficients are computed by dividing each industry's purchases (column entries in an I-O model) by its total gross output. They are only computed for the processing sector. Direct coefficients are also referred to as technical coefficients, direct requirements, or input requirements.

DIRECT EMPLOYEE COMPENSATION INCOME CHANGE. The change in wages and salaries paid to employees of a sector in response to a change in final demand for the sector's output (the direct employee compensation income coefficient times a change in final demand).

DIRECT EMPLOYEE COMPENSATION INCOME COEFFICIENTS. Wage and salary (Income) payments to employees of a sector divided by the total gross output of the sector. The coefficient represents the wages and salaries paid to employees per million dollars of total gross output. The coefficient actually becomes the percent of total gross output paid to employees working in the sector.

DOMESTIC EXPORTS. Outputs that are produced but not consumed or used in the production of other outputs in the region. Domestic exports are outputs purchased by industries and consumers outside the region but inside the United States from industries inside the region.

EMPLOYEE COMPENSATION. Wages and salaries paid to employees by the firms within each sector. Employee compensation is reported by place of production, not by place of residence of the employees. That is, if the industry is in the region, the entire amount of wages and salaries paid to employees is included in the region report.

EMPLOYMENT. Number of jobs required to produce the output of each sector. A job may be 1 week, 1 month, or 1 year long. Employment is the basic data used in determining other county-level data; thus, it is the major data element in the regional model development.

EMPLOYMENT SPECIALIZATION INDEX. A ratio of the employment from a single sector in the region divided by the total employment in the region compared to the employment in that sector in the national economy divided by total employment in the national economy. When the index is less than one, the sector is less important in the region as far as employment is concerned than it is in the national economy. If the index is positive, the sector is more important for employment in the region than it is in the Nation.

FEDERAL GOVERNMENT EXPENDITURES. Total purchases by Federal Government agencies within the region from producing sectors both inside and outside the region. The Federal Government also sells such items as timber, gravel, etc., and makes transfer payments, such as buying agricultural crops some years and selling them other years. If the net expenditures are positive, the purchases exceeded the sales; but, if the net expenditures are negative, the sales are larger than the purchases in that sector.

FINAL DEMAND. The sum of all purchases for consumption by consumers inside the region and purchases for consumption and use in production by consumers and industries outside the region including foreign exports. Final demand includes the sum of personal consumption expenditures, capital formation, inventory change, State and local government expenditures, Federal Government expenditures, domestic exports, and foreign exports.

FIRM. An organization that assembles inputs (land, labor, capital, resources, and intermediate produced products) into a production process and produces outputs (goods and services) to be used by consumers or by other firms as inputs in their production processes.

FOREIGN EXPORTS. Total purchases by firms, governments, countries, etc., outside of the United States from producing sectors within the region.

FOREIGN IMPORTS. Purchases of outputs to be used in the production process by industries or used by consumers in the region from producing industries outside the United States.

INDIRECT BUSINESS TAX. Includes such items as manufacturers' excise tax, wholesale excise tax, retail excise tax, retail sales tax, etc., which businesses have to pay when purchasing goods and services they use in their production process. Indirect business tax is reported by place of production rather than by place of final sale. This tax is determined using a margining concept and then included as part of the value added portion of the primary payments quadrant.

INDUSTRY. A firm or group of firms that assembles inputs in a production process and produces an output or group of outputs. Firms are grouped into an industry because they produce homogeneous or at least similar products and use the same or similar inputs and have the same or similar production processes.

INTERINDUSTRY TRANSACTIONS. The total dollar value of inputs required by purchasing industries, within the region, from selling industries, within the region, in order for the purchasing industry to produce the total gross output. Interindustry transactions represent the flow of goods and services moving through the economy from resources to the production of final products. However, all the products that are traded between the regional industries represented by the interindustry transactions are intermediate goods purchased to be used in the production of other goods and services. Interindustry transactions do not represent any sales of final goods (final demand) and services or sales to industries outside the region (exports).

INTERMEDIATE OUTLAYS. The sum of all purchases (interindustry transactions) of outputs produced by other industries inside the region and used as inputs in the production process of an industry.

INTERMEDIATE OUTPUTS. The sum of all sales (interindustry transactions) of outputs to other industries inside the region by industries in the region. Intermediate outputs are used by the purchasing industry as inputs in their production process.

INVENTORY CHANGE. Includes both additions (positive amounts) and depletions (negative amounts). Inventory additions include the current year outputs produced, but not sold by the year's end. Inventory depletions include the previous year's production that was used or sold during the current year. If the net inventory change is positive, then the additions are greater than the depletions. However, if the net change is negative, then the depletions are greater than the additions.

LEONTIEF INVERSE--CLOSED MODEL. A matrix of total requirements coefficients, or the amount each industry in the economy is required (direct, indirect, and induced) to produce in order for a producing industry to deliver one dollar's worth of output to final demand. Closed model signifies that the household sector is an endogenous sector in the model. Households are moved inside the matrix and treated as if they were a producing and consuming industry just like any other endogenous sector in the model. Households are moved inside the matrix and treated as if they were a producing and consuming industry just like any other endogenous sector in the model. Employee compensation plus property type income represent sales of the household sector to other industries, and personal consumption expenditures represent the purchases by the household sector as input into its production process.

LEONTIEF INVERSE--OPEN MODEL. A matrix of total requirement coefficients or the amount each industry in the economy is required to produce (directly or indirectly) in order for the purchasing industry to deliver one dollar's worth of output to final demand.

NONCOMPETITIVE IMPORTS. Purchases of outputs (used in the production process) by industries and (consumed) consumers inside the region from producing industries outside the region. These outputs must be imported because there are no industries inside the region that produce the outputs. They are noncompetitive because no industry produces them inside the region; therefore, they are not competing with local products. Noncompetitive imports are calculated by the SCALE program module. They are requirements of endogenous sectors and final demand components from sectors that have zero total gross outputs in the region data base.

NUMBER OF SECTORS. The number of sectors in an input-output model built with the IMPLAN system includes only the sectors that exist in the region. Any sector that has a positive total gross output in any county that is included in the region will be included in the model. These sectors may be aggregated using the SMASH program module. Aggregation combines sectors and reduces the number of sectors in the model.

OUTPUT/EMPLOYEE. The amount of output (total gross output) produced by one employee (job). Output/employee is calculated by dividing the total gross output of a sector by the total number of employees (jobs) in the sector.

OUTPUT SPECIALIZATION INDEX. A ratio of the output from a single sector in the region divided by the total output from all sectors in the region compared to the output from all the sectors in the Nation. When the output specialization index is less than one, the sector is less important in the regional economy than in the national economy. If the output specialization index is greater than one, then the sector is more important in the regional economy than it is in the national economy.

PERSONAL CONSUMPTION EXPENDITURES. Total purchases by the residences (households) of a region from each producing sector. These purchases may come from sectors inside the region and as such are part of final demand.

PERSONAL INCOME/JOB. A ratio of employee compensation to number employees (jobs) in a sector.

POPULATION. Population figures shown in Appendix A of the IMPLAN User's Guide were obtained from the U.S. Bureau of Census.

POPULATION/EMPLOYMENT RATIO. Developed in the IMPLAN system by dividing the regional population by the total employment. This ratio is a determination of the number of dependents that are associated with an employee. It is used in the IMPACT program module to calculate the change in population resulting from an exogenous change in final demand. The population/employment ratio calculated in the model may not be representative of the change in population resulting from a change in final demand if there are a large number of government employees (especially military) in the region. The population/employment ratio can be changed by the user of IMPLAN if it is determined that another ratio would be more accurate.

PROPERTY TYPE INCOME. Profits, rents, royalties, interests, etc. that are accruing to the owners of the property and firms and that are generated in the production and sales of outputs by sectors in the economy. Property type income is reported by place of production and not by place of residence of the owners. If used in the income impact calculation of a region, this can overstate the impact by the amount accruing to owners not residing in the region.

SECTOR. An industry or industries that are grouped together in an input-output model to reduce the size of the model, while still accounting for all industries. Industries should produce similar products and have similar input requirements to be grouped into a sector. Grouping dissimilar industries into a sector can cause meaningless results from the model.

STATE AND LOCAL GOVERNMENT EXPENDITURES. Total purchases by State and local governments within the region from producing sectors both inside and outside the region. State and local governments also sell such items as timber, gravel, etc.

TOTAL DOMESTIC FINAL PAYMENTS. The payments made for inputs that are not produced by industries in the region and are not imported from outside the United States. They include employee compensation, indirect business taxes, property type income, and domestic imports accruing to an industry during the production process.

TOTAL DOMESTIC IMPORTS. Purchases of outputs by industries and consumers inside the region from producing industries outside the region but within the United States. Total domestic imports are the sum of competitive imports and noncompetitive imports.

TOTAL FINAL DEMAND. Total final demand is the sum of personal consumption expenditures, capital formation, inventory change, State and local government expenditures, Federal government expenditures, and foreign exports. Except for foreign exports, these expenditures represent purchases by entities within the region from producing sectors both within and outside the region.

TOTAL FINAL PAYMENTS. The payments for inputs that are not produced by industries in the region. Total final payments include employee compensation; indirect business taxes; property type income; and competitive, noncompetitive, and foreign imports.

TOTAL GROSS OUTLAYS. The sum of all purchases of outputs used as inputs in the production process of an industry inside the region. Total gross outlays include the sum of all purchases from other industries inside the region (intermediate outlays), plus the purchase of all inputs not produced by industries in the region (total final payments). Total gross outlays will always equal total gross outputs for any individual producing sector because total gross outlays account for all inputs, including profit and imports, and total gross outputs account of all outputs, including consumption and exports.

TOTAL GROSS OUTPUT. The value, in producer prices, of all outputs produced by the industries in a sector. Total gross output is the sum of all sales of an industry during a calendar year. It includes net inventory change, which includes the value of outputs produced during the year and not sold, also the value of output in process at the end of the year minus the value of the output on hand and in process at the beginning of the year. For an economy as a whole, total gross output double accounts the value of production because it accounts for all sales; intermediate outputs are accounted every time they are sold. For example, calf is sold at the beginning of the year to a feed lot, then sold later in the year to a packing plant, then through the wholesaler and retailer to the consumer. The value of the original calf is accounted several times. Total gross output is the controlling value used to develop a regional input-output model with the IMPLAN system. Total gross output represents the supply for the region and, as such, is not changed by any of the mathematical manipulations used in developing the model.

TOTAL IMPORTS. Purchases of outputs by industries and consumers (final demand components) within the region from producing industries outside the region. Total imports include competitive and noncompetitive imports from within the United States and foreign imports from outside the United States.

TOTAL INCOME. The sum of property type income and employee compensation.

TOTAL VALUE ADDED. The sum of employee compensation, indirect business taxes, and property type income. Value added is essentially the income accruing to society when an output is produced and sold. Employee compensation and property type income go directly to the people, and indirect business goes to the people indirectly through government. Value added often is used as a proxy for Gross Regional Product, or as the value of all new production of the region during the year.

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